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## INTRAVENOUS INJECTIONS OF HYPOTONIC AND HYPERTONIC SOLUTIONS

### THEIR THERAPEUTIC VALUE IN THE TREATMENT OF SOME MENTAL DISORDERS


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Histologic studies of the central nervous system in dementia praecox have failed to reveal specific morphologic nerve changes. Such structural changes as may be present in this morbid condition are secondary. Quite constant, but by no means characteristic, are changes in the cerebral subarachnoid space. The changes may be termed chronic aseptic meningitis in which, among other lesions, there are present hyperplasia of the connective tissue and proliferation of the mesothelial cells. In addition, abnormal microchemical phenomena are demonstrable in the ganglion and glia cells, mainly in the form of lipoids. The aseptic meningitis is to be looked on as a meningeal reaction against toxic substances discharged from the depth of the brain tissues into the subarachnoid space. Though toxins are present also in normal cerebral tissues, they are probably neutralized after they have been removed by the tissue fluids of the brain into the subarachnoid space (by way of the perivascular spaces of Virchow-Robin) and from there to the blood.

Vast and rapid accumulations of toxic substances in the brain may produce profound toxic changes in both the ganglion and glia cells, their destruction with formation of clasmatodendrosis (breaking up of the glia fibers) and ameboid glia (degeneration of the glia cell bodies). However, such changes occur only in peracute toxic states, as can be demonstrated experimentally on animals. In catatonic and other forms of dementia praecox, essentially chronic morbid conditions, acute destruction of the parenchyma and glia does not occur.

One must assume that either accumulation of toxic substances is gradual in these conditions or their elimination defective, and that by increasing the discharge of the problematic toxins one may assist the brain in ridding itself of harmful substances and thus attaining its normal function. This can be accomplished by the method devised by Weed and his co-workers [1] in changing at will the bulk of the brain. They demonstrated that an intravenous injection of a hypertonic salt solution causes shrinkage of the brain accompanied by lowering of the pressure of the cerebrospinal fluid and that an intravenous injection of a hypotonic salt solution causes increase in the volume of the brain with rise in the pressure of the cerebrospinal fluid. Both these forms of injections have been used in our experiments. They were combined in some instances with continuous or forced drainage, the latter used by Kubie [2] and others [3] in the treatment of various acute and chronic diseases of the central nervous system. We planned experimenting with the foregoing method and its modifications on a large number of patients, but after a careful trial in three patients we found the method in general useless and discontinued it. The reasons for abandoning the method and some observations we made during our studies are of sufficient interest to be recorded:

CASE 1.—A white man, aged 23, was admitted to the Psychiatric Institute of the Research and Educational Hospitals, Oct. 28, 1932, in a catatonic state. Prior to admission the patient had been treated in a state hospital with carbon dioxide, radium chloride and many other methods. When admitted to the institute, the patient was mute and negativistic. As his general physical condition grew progressively worse, his parents readily gave permission to experiment with intravenous injections. To ascertain the difference in reactions to various solutions (isotonic, hypertonic and hypotonic) the patient was first given (from Jan. 7 to Jan. 24, 1933) by Dr. Haines three intravenous injections of Ringer's solution (150 cc.) followed by an injection of 50 cc. of 25 per cent solution of dextrose. On two occasions there were flushing of the face, slight twitchings at the corners of the mouth and excessive perspiration. From January 31 to October 26 the patient had been given intravenous injections of 0.45 per cent solution of sodium chloride. In two instances the solution was that of 0.33 per cent and in three instances that of 0.2 per cent. The amounts of fluid injected were from 200 to 2,225 cc.; the duration of each injection was from one to two hours. The hypertonic solution used was that of magnesium sulphate (25 cc. of a 10 per cent solution) or dextrose (50 per cent). The injections were given every five or eight days and during the last month (October) were combined with forced drainage of the cerebrospinal fluid, of which from 90 to 150 cc. was withdrawn. The reactions of the patient to the injections of hypotonic


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1. Weed, L. H., and McKibben, P. S.: Pressure Changes in the Cerebrospinal Fluid Following Intravenous Injection of Solutions of Various Concentrations, Am. J. Physiol. **48**: 512 (May) 1919; Experimental Alteration of Brain Bulk, ibid. **48**: 531 (May) 1919. Weed, L. H., and Hughson, Walter: Systemic Effects of the Intravenous Injection of Solutions of Various Concentrations with Especial Reference to the Cerebrospinal Fluid, ibid. **58**: 53 (Nov.) 1921.

2. Kubie, L. S.: Forced Drainage of the Cerebrospinal Fluid, Arch. Neurol. & Psychiat. **19**: 997 (June) 1928; Intracranial Pressure Changes During Forced Drainage of the Central Nervous System, ibid. **16**: 319 (Sept.) 1926.

3. Retan, G. M.: Forced Spinal Drainage in Its Relation to Infections of the Central Nervous System, J. A. M. A. **99**: 826 (Sept. 3) 1932. Retan, G. M., and Kubie, L. S.: Forced Drainage of the Cerebrospinal Fluid: Its Experimental Basis, the Technic of Clinical Application and the Indications and Contraindications, ibid. **101**: 354 (July 29) 1933. Fellows, R. M.: Forced Spinal Drainage in the Treatment of Gastric Crises, Am. J. Syph. **18**: 505 (Oct.) 1934.

solutions (1,500 cc. of a 0.2 per cent solution) were excessive perspiration, occasional cyanosis of the finger nails, flushing of the face, an eruption of an urticarial rash on the face, neck and forehead, chills, a slow, thready pulse and mild hemoglobinuria.

There were no significant changes in the temperature, respiration and for the most part pulse rates. There was always an increase of the systolic blood pressure from injection of hypotonic solution (especially after the completion of the injection), which always dropped to normal within sixty minutes after the injection. The changes in the number of red cells were insignificant. On three occasions their number increased by about 180,000 to 350,000 and in two instances there was an average drop of 365,000. In contrast, injections of hypotonic solutions invariably caused an increase in the white cells. The average increase was 2,900 cells, mainly in the polymorphonuclears. A differential count showed a decrease of lymphocytes; the eosinophils disappeared altogether. The content of nonprotein nitrogen, cholesterol, carbon dioxide and creatinine was reduced; that of total protein and sugar in the cerebrospinal fluid showed no appreciable change.

A slight improvement was noticed in the mental condition of the patient after the first treatments. He came out of the catatonic state, showed some interest in the surroundings and was somewhat cooperative. Ultimately (after about two weeks) he became worse though, as a rule, not to the extent of the preinjection severity.

Case 2.—A white man, aged 37, was admitted to the Psychiatric Institute of the Research and Educational Hospitals Aug. 15, 1933, because of an advanced case of dementia praecox (catatonic type). The patient was negativistic and exhibited stereotypies of posture and speech, a practically absolute mutism and some other features of catatonic dementia praecox. Since 1928 there had been progressive emotional deterioration, regardless of the numerous methods of treatment used—injections of carbon dioxide, administration of physiologic solution of sodium chloride by mouth and of globulin extract, and colloidal sulphur injections. After treatment of seven months' duration at the institute, the patient was transferred to the Chicago State Hospital as unimproved. The hypotonic solutions used were those of 0.45, 0.33 and 0.2 per cent. The average amount injected was 1,500 cc. In one injection it was 2,640 cc. (0.45 per cent); four injections were of 0.2 per cent and three of 0.45 per cent and one of 0.3 per cent, all without untoward effects. Only in one instance was there cyanosis of the lips and the finger nails, and the urine was blood tinged (in the seventh injection). The blood pressure rose during and immediately after the injection (the highest rise was 24 points) and came down to the preinjection level within ten minutes. The number of red cells dropped on all occasions by 380,000. Once after an injection of magnesium sulphate there was a further drop of half a million. The number of the white cells practically always showed an increase, especially the polymorphonuclears (by 23 per cent), while that of the lymphocytes dropped by 25 per cent. No particular changes were found in the carbon dioxide and calcium content of the blood.

Case 3.—A man, aged 32, was admitted to the Psychiatric Institute of the Research and Educational Hospitals, March 2, 1932, with the classification of schizophrenia (hebephrenic type). Prior to admission he had been unsuccessfully treated for six years at one of the state hospitals with various methods. The patient became untidy, destructive and uncooperative.

The treatment with intravenous injections was begun on March 31, 1933, and was continued for a period of seven months with a three months' interval. Thirteen injections were given, in amounts of from 1,000 to 1,500 cc. of 0.45, 0.33 and 0.2 per cent solutions of sodium chloride. The patient usually tolerated the injections well. In two instances, after an injection of 0.45 per cent solution, he became agitated, complained of warmth and jumped around, the face flushed. The effects of the injections were the same as observed in the two previous patients. The blood pressure rose during and after the injections, in some instances 22 points; the red cells and cholesterol exhibited a slight drop; the white blood cells (the polymorphonuclears) showed an increase and after an injection of 1,500 cc. of a 0.2 per cent solution of sodium chloride the urine appeared wine colored. As in case 1 there was a temporary improvement in the mental condition but none was noticed from the subsequent treatments.

### COMMENT

The three patients represented advanced stages of schizophrenia and, as noted, had not improved under any treatment. For this reason they were selected for the experiments with intravenous injections of hypotonic and hypertonic salt solutions. In the additional use of hypertonic solutions and in the use in some instances of the hypotonic solution only, this method differs from that used by Kubie,[2] Retan and others[3] in organic diseases of the central nervous system. Hypotonic solutions injected into the veins cause, through osmosis, excessive accumulation of fluids in the brain, their flooding, as it were, and increase in the bulk of the brain. A subsequent intravenous injection of a hypertonic salt solution produces, also through osmosis, a reversed action—a return of the excessively accumulated fluids into the blood vessels and the adventitial spaces of Virchow-Robin with the subsequent shrinkage of the brain tissue. Returning to the blood vessels of the brain, the tissue fluids containing the vastly diluted waste products of the cerebral parenchyma are partly absorbed by the blood and partly discharged into the cerebral subarachnoid space. From here they are removed through the perineurial channels to the periphery. A veritable lavage of the brain is thus effected, unaccompanied by severe reactions of the organism. The practical absence of complications following injections of 2 or more liters of greatly diluted (0.2 per cent) solutions of sodium chloride is especially noteworthy. However, no striking mental reaction was noticeable, and the therapeutic method, though based on apparently sound experimental and pathologic facts, must be considered worthless. The reason for the failure lies in the fact that the problematic toxins of the brain are not removed by the method here described in sufficient quantities to effect either a cure or even a temporary improvement. According to the current teachings[4] the contents of the subarachnoid space are derived from the choroid plexus and in smaller amounts from the cerebral perivascular spaces of Virchow-Robin. The rapid increase in the amount of fluids in the brain after injections of hypotonic salt solutions and their equally rapid decrease after injections of hypertonic solutions would rather suggest that the entire cerebrospinal fluid is derived from the tissue fluids of the brain.[5] Reaching the subarachnoid space the fluids are absorbed (according to current teachings) into the vascular system, either by the arachnoid villi or by the perineurial spaces of the cerebral blood vessels. The latter mode of absorption is most likely the correct one.[6] Whatever the theory, the ultimate discharge of the cerebrospinal fluid and the toxic substances is into the vascular system. The forced drainage removes only a small amount of fluid—from 90 cc. to about 150 cc.—against 2 or more liters injected intravenously, and Kubie himself stated that "the possibility that some fluid may become trapped in the system cannot be ruled out by the methods used." Even were it possible to wash out and remove the toxins entirely, one could not pre-

4. Weed, L. H.: Studies on Cerebrospinal Fluid: IV. The Dual Source of Cerebrospinal Fluid, J. M. Research 31:93, 1914.
5. Hassin, G. B.: The Effect of Organic Brain and Spinal Cord Changes on the Subarachnoid Space, Choroid Plexus and Cerebrospinal Fluid, Arch. Neurol. & Psychiat. 14:468 (Oct.) 1925; Hydrocephalus: Studies of the Pathology and Pathogenesis with Remarks on the Cerebrospinal Fluid, ibid. 24:1164 (Dec.) 1930; Hydrocephalus: Report of a Case in an Infant with Vestiges of a Choroid Plexus in the Fourth Ventricle Only, ibid. 27:406 (Feb.) 1932.
6. Hassin, G. B.: So-Called Circulation of the Cerebrospinal Fluid, J. A. M. A. 101:821 (Sept. 9) 1933.

vent formation of new toxic substances, for the exact mode and cause of their formation and their nature are not known. The foregoing considerations seem to present sufficient reasons for abandoning the method of intravenous injections of hypotonic or hypertonic solutions because useless. However, it may yet prove valuable if solutions used are not those of sodium chloride alone but combined with some medicinal substances possessing certain chemical affinity for the nerve elements.

### CONCLUSIONS

1. The basis of the method of treatment of abnormal mental conditions with intravenous injections of hypotonic and hypertonic salt solutions is the dilution of the toxins contained in the tissue fluids of the brain and their removal mainly to the subarachnoid space.
2. Large amounts (about 2.5 liters of hypotonic salt solution) can be injected intravenously without harmful effects.
3. The solution of sodium chloride may be as low as 0.2 per cent.
4. The changes in the chemistry and morphology of the blood are mild and transitory.
5. Only a small part of the increased amount of the cerebrospinal fluid formed by intravenous injections of the hypotonic solutions can be removed from the nervous system by forced drainage, the larger portion remaining in the brain and becoming reabsorbed into the general blood circulation.

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## AN EVALUATION OF DINITROPHENOL AS AN AID IN WEIGHT REDUCTION

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Much attention has been directed in recent years to the reduction of the weight of obese subjects. The removal of fat deposits is dependent on the creation of a deficit between the daily intake and the daily output of energy. This deficit can be obtained either by a reduction of intake or by an increase of output.

In the past year a new group of chemicals, of which the principal one is alpha-dinitrophenol (1-2-4), has been advocated as a method of securing weight reduction by increasing the energy output.[1] These drugs have an advantage over thyroid extract in the absence of certain side reactions such as tachycardia and palpitation. It therefore becomes desirable to discover the practical value of the use of dinitrophenol [2] by observation of its effect on the weight change of obese patients who have been placed on carefully established regimens and to compare these results with those obtainable by well established dietary procedures.

### METHODS

Six patients were studied over periods varying from 54 to 115 days. These patients were all women in good health apart from the obesity and certain dependent disabilities such as varicose veins and painful knees. They varied from young adult to middle age and from moderately to grossly obese and may be regarded as fairly representative of the average types of obese patients encountered in practice.

The strict technic of the metabolic pavilion governing intake and output of food and residues, which has been described elsewhere, was observed throughout.[3] Body weights were taken daily under our "standard" conditions.

On each patient the total periods of study were divided into two parts: (A), that in which the patient received a diet of approximately maintenance caloric value; (B) that in which a reduction diet of the type that we have employed for more than seven years was used. In each major division, the patient was established on the dietary regimen for one or more weeks. When the rate of metabolism and the rate of weight change appeared to have become stabilized, dinitrophenol was given in doses up to 300 mg. daily for one or more weeks. The drug was then discontinued and, after subsequent periods of stabilization, employed again. All patients had two periods with dinitrophenol. One patient had four such periods.

Basal metabolism determinations were done as a routine twice a week. Unusual observations were repeated on the following mornings. The Tissot method was used throughout. Body surface measurements were estimated from the Sandiford tables. Most of the data are expressed in terms of total caloric exchange rather than in terms of basal metabolic rate.

The results are tabulated according to the major dietary periods and their successive subdivisions. The maintenance diet period (A) was composed of three subdivisions: (1) stabilization period of maintenance diet without drug, (2) maintenance diet plus dinitrophenol and (3) maintenance diet without drug. Only three patients were observed in the third phase. In the comparative analysis based on data recorded in table 2, the figures for the two drug-free periods taken together are contrasted with those for the dinitrophenol period. The average figures are not weighted, because the distortion resulting is relatively slight and the complete details appear in table 3. In subsequent portions of the discussion, only strictly comparable data are employed.

The reduction diet period (B) was composed of seven subdivisions: (1) reduction diet alone, (2) reduction diet plus dinitrophenol, (3) reduction diet alone, (4) reduction diet plus dinitrophenol—three patients only, (5) reduction diet alone—three patients only, (6) reduction diet plus dinitrophenol—one patient only, (7) reduction diet alone—one patient only. Again, as with the maintenance diet figures, the unweighted data for the four drug-free periods are contrasted with those of the three dinitrophenol periods in the analysis based on the data in table 2. The details of these periods are recorded in table 4. In the subsequent discussion only strictly comparable data are employed.

Each of the subdivisions of these two major periods, namely, maintenance diet and reduction diet, was further divided for purposes of more careful analysis into a first and a second half. It was felt that the heat production data of the successive first half periods were greatly influenced by the lag in the building up of the metabolism to a maximum after the drug was started

From the Division of Internal Medicine of the Western Pennsylvania Hospital.

1. Cutting, W. C.; Mehrtens, H. G., and Tainter, M. L.: Actions and Uses of Dinitrophenol, J. A. M. A. 101:193 (July 15) 1933. Tainter, M. L.; Stockton, A. B., and Cutting, W. C.: Use of Dinitrophenol in Obesity and Related Conditions, ibid. 101:1472 (Nov. 4) 1933. Dodds, E. C., and Pope, W. J.: Dinitro-o-Cresol as a Stimulator of Metabolism, Lancet 2:352 (Aug. 12) 1933. Dodds, E. C., and Robertson, J. D.: The Clinical Applications of Dinitro-o-Cresol, ibid. 2:1137 (Nov. 18) 1933.

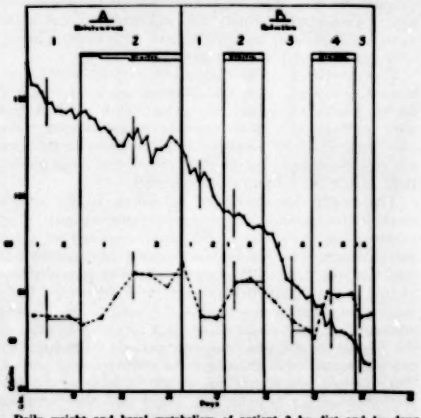
2. The dinitrophenol used in this work was supplied to us by the Department of Pharmacology of the Stanford University School of Medicine, through the courtesy of Dr. M. L. Tainter.

3. Strang, J. M., and Cox, A. B.: The Analysis of High Caloric Diets in Relation to Weight Change, Ann. Int. Med. 7:152 (Aug.) 1933.

or in the drop from a maximum to a natural level after the drug was stopped. Also, large alterations in water balance which require separate consideration occurred in the first half periods. The decision as to the time of separation of the second halves was of course arbitrary. It was based in part on the demonstration of a rather uniform slope of daily weight curve but more especially on the demonstration of a maximum or a minimum plateau on the curve of basal metabolism. Accordingly, it is felt that the data of the second half periods are as free from controllable extraneous influence as is possible.

## RESULTS

The six patients on admission weighed from 77.6 to 150.5 Kg., with an average of 111.8 Kg. They were studied for a total of 437 days, with a range from 54 to 115 days. They lost a total of 99.4 Kg., or an average of 16.6 Kg. each. For 190 days of the study the patients received approximately "maintenance" diets, on which they lost 24.8 Kg. For 102 days, or



Daily weight and basal metabolism of patient 2 by diet and by drug periods. The weight is indicated by the solid line and the basal metabolism, calories per hour, by the broken line.

54 per cent of this period, they received an average daily dose of 250 mg. of dinitrophenol. In the remaining 247 days in which they were on "reduction" diets they lost 74.6 Kg. For ninety days, or 36 per cent of this reduction diet period, they received an average daily dose of 290 mg. of the drug. The averages of the individual rates of weight loss were 130 Gm. per day and 290 Gm. per day, respectively, for these two periods (table 1).

In table 2 the data are divided into four periods.

1. Maintenance diet without the drug.
2. Maintenance diet with the drug.
3. Reduction diet without the drug.
4. Reduction diet with the drug.

The data in this table are further subdivided for reasons already given into first and second halves for each of these four periods. Without discussing the various details presented in this table, it is observed that, however subdivided and compared, the rates of weight loss with both diets, that of more than 2,500 calories and that of less than 600 calories, were greater without the drug than when it was being taken. Attention may also be drawn to the data showing the relation between basal metabolism determinations and the rate of weight loss. As a result of the use of dinitrophenol there was an increase of oxygen consumption. This increase was of approximately the same magnitude (20 per cent) when the drug was given in addition to the maintenance or the reduction diet. The apparent paradox of diminished rate of weight loss with an increased rate of oxygen exchange is discussed later.

For brevity, the details of the individual subjects are arranged in tables according to diet level. Table 3 contains the data of the maintenance diet division (A), of which there were three phases: 1 and 3 without drug, and 2 with dinitrophenol. Table 4 covers the seven phases of the reduction diet periods (B), of which four phases (1, 3, 5 and 7) were drug free and three phases (2, 4 and 6) were with dinitrophenol.

The rationale for subdividing each individual phase of the major dietary periods into a first and second half period becomes more apparent from a study of the superimposed graphs of basal metabolism and daily weight. The curves for one subject, patient 2, which appear in the accompanying chart, indicate chronologically the major dietary periods and particularly the method of identifying the first and second half portions of the individual phases.

## SYMPTOMATOLOGY

At the time of admission, our patients had a variety of the usual complaints of obese persons who seek medical aid, such as varicose veins with ulceration, headache, dyspnea on exertion, and pain in the lower part of the back. One patient was recovering from pityriasis rosea. During the period of maintenance diet without drug the majority of these symptoms subsided rapidly, possibly in association with the almost complete physical rest. When dinitrophenol was added to the maintenance diet, the first symptoms noted were warmth of the skin and sweating. Sweating occurred on the first day in one patient and before the eighth day in five patients. Drenching night sweats occurred in four patients from the fourth to the tenth day. Day sweats were noted by three patients but were less frequent than the night sweats. The sweating was not continuous. After several nights of profuse sweating, intervals of several days elapsed with relatively little sweating before the return of the drenching sweats. One patient had no sweating. No itching was experienced by three patients. One patient had moderate itching for only two days. One patient had a severe dermatitis, which began on the tenth day. Three patients had headache after the seventh and tenth days. One patient had nausea and dizziness for several days, another had epigastric pain for from two to three days before the drug was stopped. After the drug was stopped the symptoms diminished rapidly. No sweating was noted after the second day. Headaches continued in two patients at intervals. One patient had itching for most of the post-drug interval. The same patient also had many nervous manifestations such as precordial distress and choking spells, which were probably quite unrelated to the use of the drug.

When the dinitrophenol was started for the second time, this time in association with the reduction diet, cutaneous manifestations promptly returned. Sweating was noted in only four patients. Three patients had one or more profuse night sweats from the fifth to the

ninth day. One patient had a single massive sweat on the sixth night only. Itching was much more serious in this period. On two patients an acute dermatitis developed which required the stoppage of the drug. In one case a rash appeared on the arm on the fifth day, which in two days extended over the shoulder. In the other case an intense generalized rash appeared on the ninth day. Three other patients had moderate to severe pruritus beginning from the first to the fifth day of the drug. Patient 3 continued to have attacks of smothering at intervals of several days.

The skin reactions subsided after the drug was stopped, but much less promptly than on the previous occasion. No sweating was noted after the second day. In the three patients with moderate itch, this symptom diminished rapidly after the first day. In patient 6 the dermatitis progressed for four days after the drug was stopped, covering at its maximum nearly the whole body. It then subsided rapidly. Patient 5 began to have attacks of acute urticaria, which subsided after the fourth day. She was found to be sensitive to mushrooms, although the rôle played by this food in the attacks is questionable.

Three patients received a third course of dinitrophenol, this time also in association with a reduction diet. One patient had no sweating, and a second had drenching sweats for one day and two nights. The third patient sweat profusely at intervals after the fifth day. Two patients again experienced severe itching, which started on the second and fourth days and lasted throughout the remainder of the respective periods. These phenomena subsided promptly after the drug was stopped.

A single patient was given a fourth course of dinitrophenol. It is interesting to note that whereas this patient had experienced considerable difficulty in previous courses with sweating and itching, on this occasion she had no itching and very little sweating.

### RELATION OF ENERGY BALANCE TO RATE OF WEIGHT LOSS

In viewing the problem of the removal of excess weight in obesity, one should keep in mind its intrinsic nature; that is, what is to be removed. The excess weight consists of small amounts of supporting tissue and considerable water, but chiefly of fat. There is no evidence that this fat differs basically from other natural fats, and consequently each gram contains 9.3 calories of potential energy. Weight changes can be effected by the removal of any of the component substances. What is measured by the scale is the residual balance of all substances quite without regard to the type of material. In other words, the scale does not discriminate between the removal of 5 pounds of water and 5 pounds of fat. Rapid large weight changes are usually transient and are due chiefly to alterations in the water content of the body. Permanent reductions of weight involve the removal of fat. The only nonsurgical method of removing fat from the body is by oxidation.

The amount of fat that may be oxidized in any period is limited by the balance of the energy output and intake of the period—in other words, the rate of fat loss is directly proportional to the caloric deficit. The total amount of fat that may be lost depends on the time through which the caloric deficit persists. It is self evident that in order to secure a large weight change in a comparatively short time the maximum possible caloric deficit should be secured.

The high level of energy exchange in the obese has been frequently reported. In this series of patients, the average basal metabolism (twenty-three determinations) for the first seventy days of study during which the patients received a maintenance diet without drug was 77.6 calories per hour, which corresponds to an average basal metabolic rate of + 2 per cent. However, in comparison with the metabolism that these

TABLE 1.—*Weight Changes in Total Period of Study*

| | Total Period | | | | | Maintenance Diet | | | Reduction Diet | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Weight | | | | | | | | | |
| Patient | Days | Initial, Kg. | Final, Kg. | Loss, Kg. | Weight Loss per Day, Kg. | Days | Weight Loss, Kg. | Weight Loss per Day, Kg. | Days | Weight Loss, Kg. | Weight Loss per Day, Kg. |
| 1 | 115 | 180.5 | 117.0 | 33.5 | 0.29 | 39 | 6.6 | 0.17 | 76 | 26.9 | 0.35 |
| 2 | 71 | 107.0 | 91.4 | 15.6 | 0.22 | 32 | 4.4 | 0.14 | 39 | 11.2 | 0.29 |
| 3 | 72 | 94.7 | 76.3 | 18.4 | 0.25 | 24 | 3.2 | 0.13 | 48 | 15.2 | 0.32 |
| 4 | 69 | 111.0 | 99.3 | 11.7 | 0.20 | 30 | 3.3 | 0.11 | 39 | 8.4 | 0.28 |
| 5 | 65 | 77.6 | 70.7 | 6.9 | 0.11 | 35 | 0.9 | 0.02 | 30 | 6.0 | 0.20 |
| 6 | 54 | 130.3 | 117.0 | 13.3 | 0.25 | 30 | 6.4 | 0.21 | 24 | 6.9 | 0.29 |
| Average | | | | | 0.22 | | | 0.13 | | | 0.29 |

TABLE 2.—*Effect of Dinitrophenol on Basal Metabolism and Rate of Weight Loss: Total Period of Study*

| | Total Period | | | | | | First Half | | | | Second Half | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Basal Metabolism | | | | | | | | | | | | |
| Period | Days | No. of Determinations | Calories per Hour | Intake, Calories | Weight Loss, Kg. | Rate of Weight Loss, Kg. per Day | Dinitrophenol, Mg. per Day | Days | Basal Metabolism, Calories per Hour | Weight Loss, Kg. | Rate of Weight Loss, Kg. per Day | Days | Basal Metabolism, Calories per Hour | Weight Loss, Kg. | Rate of Weight Loss, Kg. per Day |
| Maintenance Diets | | | | | | | | | | | | | | | |
| No drug | 88 | 28 | 76.9 | 2,510 | 12.2 | 0.15 | 0 | 44 | 81.6 | 7.8 | 0.20 | 44 | 76.5 | 4.4 | 0.12 |
| With drug | 102 | 31 | 89.9 | 2,570 | 12.6 | 0.13 | 250 | 53 | 76.3 | 9.0 | 0.17 | 49 | 92.9 | 3.6 | 0.08 |
| | | | +13.0 | | | −0.02 | | | −5.3 | | −0.03 | | +16.4 | | −0.04 |
| Reduction Diets | | | | | | | | | | | | | | | |
| No drug | 157 | 46 | 74.0 | 585 | 51.6 | 0.33 | 0 | 76 | 82.5 | 29.9 | 0.37 | 81 | 71.6 | 21.7 | 0.28 |
| With drug | 90 | 33 | 90.4 | 570 | 22.0 | 0.25 | 250 | 43 | 79.6 | 12.7 | 0.27 | 47 | 93.1 | 10.3 | 0.23 |
| | | | +16.4 | | | −0.08 | | | −2.9 | | −0.10 | | +21.5 | | −0.05 |

patients would have if they were of normal weight, this basal metabolic level is elevated 31 per cent.

Certain information regarding the total metabolism may be obtained by noting the weight changes observed in the period of maintenance diet without drug. In this seventy day period the patients lost an average of 8.4 Kg. while sitting around a ward doing nothing but sewing and reading and at the same time eating an average of 2,510 calories per person daily. If it is objected that these figures for weight loss include the large water shifts that have often been noted in the first few days of hospitalization, only the last thirty-four days of this seventy day period may be considered, in which the patients lost 2 Kg. In this second half period of thirty-four days the patients lost an average of 50 Gm. per person daily, which indicates that the total metabolism was somewhat in excess of the caloric calories if it is assumed for practical purposes that the 2,510 caloric diet was a maintenance diet. If it is considered that this caloric deficit was supplied by fat alone, 210 Gm. of fat would be required, which is equivalent to 240 Gm. of fatty tissue. The average of the rates of weight loss actually observed for this thirty-two day period of reduction diet was 300 Gm. per day, with surprisingly little individual variation from the average. If the average of the rates of weight loss of the thirty-four days of maintenance diet, 50 Gm. per day, is subtracted, the difference is 250 Gm., which may be compared with the value estimated from the probable caloric deficit, 240 Gm. per day. An agreement of this order may be considered as strong supporting evidence that the principal factor regulating the rate of fat loss from the body is the magnitude of the caloric deficit.

TABLE 3.—*Observations on Individual Patients: Maintenance Diet Periods*

| | | Total Period | | | | | | | | First Half | | | | Second Half | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Weight | | | Rate of Weight Loss, Kg. per Day | Basal Metabolism | | | | | | | | | | | |
| Patient | Days | Initial, Kg. | Final, Kg. | Loss, Kg. | | No. of Determinations | Calories per Hour | Intake, Calories | Dinitrophenol, Mg. per Day | Days | Weight Loss, Kg. | Rate of Weight Loss, Kg. per Day | Basal Metabolism, Calories per Hour | Days | Weight Loss, Kg. | Rate of Weight Loss, Kg. per Day | Basal Metabolism, Calories per Hour |
| **Period $A_1$—No Drug** | | | | | | | | | | | | | | | | | |
| 1 | 15 | 150.5 | 148.5 | 2.0 | 0.13 | 5 | 97.8 | 2,510 | 0 | 10 | 1.5 | 0.15 | 102.7 | 5 | 0.5 | 0.10 | 98.6 |
| 2 | 11 | 107.0 | 104.4 | 2.6 | 0.24 | 4 | 70.4 | 2,510 | 0 | 6 | 2.1 | 0.35 | 71.6 | 7 | 0.5 | 0.07 | 70.0 |
| 3 | 9 | 94.7 | 93.4 | 1.3 | 0.14 | 3 | 78.6 | 2,450 | 0 | 4 | 1.0 | 0.25 | 78.6 | 5 | 0.3 | 0.06 | 79.6 |
| 4 | 12 | 111.0 | 110.9 | 0.1 | 0.01 | 5 | 76.6 | 2,450 | 0 | 5 | +0.1 | +0.02 | 76.8 | 7 | +0.2 | 0.03 | 83.3 |
| 5 | 11 | 77.6 | 77.7 | +0.1 | +0.01 | 3 | 53.4 | 2,250 | 0 | 7 | 0.1 | 0.01 | 52.5 | 4 | +0.2 | +0.05 | 58.8 |
| 6 | 12 | 130.3 | 127.8 | 2.5 | 0.21 | 3 | 91.8 | 2,500 | 0 | 6 | 1.8 | 0.30 | 104.8 | 6 | 0.7 | 0.11 | 99.8 |
| 1-6 | 70 | ..... | ..... | 8.4 | 0.12 | .. | 77.6 | 2,510 | .. | 38 | 6.4 | 0.39 | 81.3 | 34 | 2.0 | 0.05 | 76.9 |
| 1-3 | 35 | ..... | ..... | 5.9 | 0.17 | .. | 82.6 | 2,620 | .. | 18 | 4.6 | 0.31 | 84.6 | 17 | 1.3 | 0.08 | 92.1 |
| 4-6 | 35 | ..... | ..... | 2.5 | 0.07 | .. | 72.6 | 2,400 | .. | 18 | 1.8 | 0.10 | 78.0 | 17 | 0.7 | 0.03 | 71.8 |
| **Period $A_2$—With Drug** | | | | | | | | | | | | | | | | | |
| 1 | 24 | 148.5 | 143.9 | 4.6 | 0.19 | 9 | 101.3 | 2,000 | 210 | 16 | 3.5 | 0.22 | 98.6 | 8 | 1.1 | 0.14 | 104.5 |
| 2 | 21 | 104.4 | 102.6 | 1.8 | 0.09 | 6 | 83.9 | 2,400 | 220 | 11 | 1.3 | 0.12 | 75.5 | 10 | 0.5 | 0.05 | 86.4 |
| 3 | 15 | 93.4 | 91.5 | 1.9 | 0.13 | 4 | 83.2 | 2,300 | 240 | 11 | 1.5 | 0.14 | 79.1 | 4 | 0.1 | 0.02 | 97.1 |
| 4 | 12 | 110.9 | 108.8 | 2.1 | 0.18 | 3 | 101.1 | 2,300 | 280 | 4 | 1.0 | 0.25 | 91.6 | 8 | 1.1 | 0.14 | 101.9 |
| 5 | 18 | 77.7 | 77.6 | 0.1 | 0.01 | 5 | 70.7 | 2,300 | 280 | 6 | 0 | 0 | 53.0 | 12 | 0.1 | 0.01 | 74.5 |
| 6 | 12 | 127.8 | 125.7 | 2.1 | 0.18 | 4 | 90.2 | 2,300 | 280 | 5 | 1.4 | 0.28 | 99.3 | 7 | 0.7 | 0.10 | 102.1 |
| 1-6 | 102 | ..... | ..... | 12.6 | 0.13 | .. | 88.9 | 2,370 | 260 | 53 | 9.0 | 0.17 | 78.3 | 49 | 3.5 | 0.08 | 92.0 |
| 1-3 | 60 | ..... | ..... | 8.3 | 0.14 | .. | 89.2 | 2,320 | 240 | 38 | 6.6 | 0.17 | 85.7 | 22 | 1.7 | 0.07 | 92.3 |
| 4-6 | 42 | ..... | ..... | 4.3 | 0.12 | .. | 90.3 | 2,500 | 280 | 15 | 2.4 | 0.16 | 68.9 | 27 | 1.9 | 0.09 | 93.5 |
| **Period $A_3$—No Drug** | | | | | | | | | | | | | | | | | |
| 4 | 6 | 108.8 | 107.7 | 1.1 | 0.18 | 2 | 78.8 | 2,500 | 0 | 3 | 0.5 | 0.16 | 84.5 | 3 | 0.6 | 0.20 | 72.8 |
| 5 | 6 | 77.6 | 76.7 | 0.9 | 0.15 | 2 | 58.8 | 2,500 | 0 | 2 | 0.3 | 0.15 | 68.7* | 4 | 0.6 | 0.15 | 58.8 |
| 6 | 6 | 125.7 | 123.9 | 1.8 | 0.30 | 1 | 88.3 | 2,500 | 0 | 3 | 0.6 | 0.20 | 94.7* | 3 | 1.2 | 0.40 | 88.3 |
| 4-6 | 18 | ..... | ..... | 3.8 | 0.21 | .. | 75.6 | 2,500 | .. | 8 | 1.4 | 0.20 | 82.6 | 10 | 2.4 | 0.25 | 75.6 |

* Interpolated.

intake of 2,510 calories. However, the basal metabolism averaged 1,850 calories in twenty-four hours, or more than 70 per cent of this minimum estimation of total energy output. This magnitude of the energy exchange of obese persons who are so much at rest that the energy of the combined specific dynamic action, work and nonwork fractions of daily metabolism totals only 680 calories per day is not generally appreciated.

The close relation that exists between caloric deficit and rate of weight loss is indicated by a comparison of the initial seventy day period of maintenance diet without drug and the first period of sixty-three days of reduction diet without drug. In order to minimize the large water shifts at the outset of the former period due to hospitalization and at the outset of the latter period due to the sudden transition to a highly ketogenic metabolic mixture, only the second and more stable halves of these respective subdivisions may be compared. The average intakes for these half periods of thirty-four and thirty-two days respectively were 2,510 and 540 calories—an average daily deficit of 1,970

## CALORIC DEFICIT OBTAINABLE WITH DINITROPHENOL AND CONSEQUENT PROBABLE RATE OF WEIGHT LOSS

Methods of securing large caloric deficits consist of those which reduce the intake and those which elevate the output of energy. The preceding paragraph summarizes the results obtainable by reduction of intake. Dinitrophenol is employed to elevate the output of energy. First of all it is desirable to approximate the caloric deficit theoretically obtainable by the drug and the theoretical rate of weight loss resulting. In this connection it is necessary to make two assumptions, the correctness of which we seriously question: (1) that dinitrophenol produces no qualitative alterations in the oxidation processes of the body, and therefore (2) that it causes no interference with the estimation of heat production from a measurement of oxygen consumption and carbon dioxide production in which the standard correlation tables are used. What alteration in energy exchange could be attributed to dinitrophenol? Unfortunately no data on the total metabolism

of the drug periods are available nor can they be approximated from our studies, because of the shifts in water balance. However, the basal metabolism of these patients probably constituted more than 70 per cent of the total metabolism in the period of maintenance diet without drug. It may therefore be considered that the effect of the drug on the basal metabolism will reflect its chief effect on the total metabolism. The average basal metabolism was 76.9 calories per hour in the latter thirty-four days of the first seventy above the drug-free levels. The total effect in twenty-four hours of such a caloric increase is less than 450 calories, a caloric effect that corresponds to 48 Gm. of fat or 55 Gm. of fat tissue. The caloric increments due to the influence of dinitrophenol on the other fractions of total metabolism cannot be estimated but would probably be small.

In other words, the caloric deficit that can be produced by the elevation of metabolism which results from full therapeutic doses of dinitrophenol is some-

TABLE 4.—*Observations on Individual Patients: Reduction Diet Periods*

| | | Total Period | | | | | | | | First Half | | | | Second Half | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Weight | | | Rate of Weight Loss, | Basal Metabolism | | | | | | | | | | | |
| Patient | Days | Initial, Kg. | Final, Kg. | Loss, Kg. | Kg. per Day | No. of Determinations | Calories per Hour | Intake, Calories | Dinitrophenol, Mg. per Day | Days | Weight Loss, Kg. | Rate of Weight Loss, Kg. per Day | Basal Metabolism, Calories per Hour | Days | Weight Loss, Kg. | Rate of Weight Loss, Kg. per Day | Basal Metabolism, Calories per Hour |
| **Period $B_1$—No Drug** | | | | | | | | | | | | | | | | | |
| 1 | 15 | 143.9 | 138.9 | 7.0 | 0.47 | 5 | 81.5 | 880 | 0 | 8 | 5.2 | 0.65 | 88.8 | 7 | 1.8 | 0.26 | 87.2 |
| 2 | 9 | 102.6 | 99.3 | 3.3 | 0.37 | 2 | 70.8 | 880 | 0 | 4 | 1.7 | 0.43 | 82.9 | 5 | 1.6 | 0.32 | 70.8 |
| 3 | 12 | 91.5 | 88.4 | 3.1 | 0.43 | 3 | 69.9 | 880 | 0 | 8 | 4.0 | 0.50 | 74.5 | 4 | 1.1 | 0.28 | 68.1 |
| 4 | 9 | 107.7 | 104.7 | 3.0 | 0.33 | 2 | 76.7 | 880 | 0 | 5 | 1.4 | 0.28 | 75.1 | 4 | 1.6 | 0.37 | 78.7 |
| 5 | 9 | 76.7 | 74.1 | 2.6 | 0.29 | 2 | 57.3 | 540 | 0 | 5 | 1.1 | 0.26 | 57.0 | 4 | 1.5 | 0.25 | 57.4 |
| 6 | 9 | 123.9 | 120.5 | 3.4 | 0.38 | 3 | 83.1 | 540 | 0 | 5 | 1.8 | 0.36 | 80.4 | 4 | 1.6 | 0.40 | 79.5 |
| 1-6 | 63 | ..... | ..... | 24.4 | 0.38 | .. | 74.7 | 830 | .. | 31 | 15.2 | 0.48 | 81.5 | 32 | 9.2 | 0.30 | 73.0 |
| 1-3 | 36 | ..... | ..... | 15.6 | 0.42 | .. | 77.1 | 840 | .. | 20 | 10.9 | 0.53 | 86.7 | 16 | 4.5 | 0.29 | 74.7 |
| 4-6 | 27 | ..... | ..... | 9.9 | 0.33 | .. | 72.6 | 880 | .. | 11 | 4.3 | 0.39 | 74.2 | 16 | 4.7 | 0.31 | 71.2 |
| **Period $B_2$—With Drug** | | | | | | | | | | | | | | | | | |
| 1 | 12 | 136.9 | 133.4 | 3.5 | 0.29 | 5 | 116.5 | 610 | 250 | 6 | 2.1 | 0.35 | 94.5 | 6 | 1.4 | 0.23 | 122.1 |
| 2 | 8 | 99.3 | 96.5 | 0.8 | 0.10 | 2 | 85.9 | 520 | 300 | 2 | 0.2 | 0.10 | 78.5* | 6 | 0.6 | 0.10 | 85.9 |
| 3 | 9 | 88.4 | 83.9 | 2.5 | 0.28 | 4 | 75.6 | 570 | 300 | 5 | 1.8 | 0.36 | 69.0 | 4 | 0.7 | 0.18 | 77.7 |
| 4 | 9 | 104.7 | 101.1 | 3.6 | 0.40 | 3 | 88.1 | 570 | 270 | 5 | 2.7 | 0.54 | 79.9 | 4 | 1.4 | 0.35 | 99.3 |
| 5 | 9 | 74.1 | 72.4 | 1.7 | 0.19 | 3 | 69.8 | 550 | 270 | 5 | 0.7 | 0.14 | 69.9 | 4 | 1.0 | 0.25 | 72.8 |
| 6 | 5 | 120.5 | 119.5 | 1.0 | 0.20 | 2 | 95.2 | 540 | 300 | 2 | 0.1 | 0.05 | 88.9* | 3 | 0.9 | 0.30 | 98.2 |
| 1-6 | 52 | ..... | ..... | 13.1 | 0.24 | .. | 88.0 | 560 | 280 | 25 | 7.1 | 0.24 | 78.7 | 27 | 6.0 | 0.24 | 90.5 |
| 1-3 | 29 | ..... | ..... | 6.8 | 0.22 | .. | 92.7 | 570 | 290 | 13 | 4.1 | 0.27 | 80.7 | 16 | 2.7 | 0.17 | 95.2 |
| 4-6 | 23 | ..... | ..... | 6.3 | 0.26 | .. | 83.4 | 550 | 290 | 12 | 3.0 | 0.21 | 76.6 | 11 | 3.3 | 0.30 | 85.8 |
| **Period $B_3$—No Drug** | | | | | | | | | | | | | | | | | |
| 1 | 15 | 133.4 | 129.0 | 5.4 | 0.36 | 4 | 87.7 | 670 | 0 | 6 | 2.2 | 0.37 | 94.9 | 9 | 3.2 | 0.35 | 85.2 |
| 2 | 10 | 98.5 | 94.9 | 3.6 | 0.36 | 4 | 63.4 | 520 | 0 | 6 | 2.8 | 0.47 | 77.6 | 4 | 0.8 | 0.20 | 65.4 |
| 3 | 9 | 83.9 | 81.2 | 2.7 | 0.30 | 4 | 68.7 | 620 | 0 | 3 | 1.1 | 0.36 | 76.0 | 6 | 1.6 | 0.27 | 66.1 |
| 4 | 12 | 101.1 | 99.3 | 1.8 | 0.15 | 3 | 71.9 | 620 | 0 | 6 | 0.9 | 0.15 | 77.6 | 6 | 0.9 | 0.15 | 69.1 |
| 5 | 12 | 72.4 | 70.7 | 1.7 | 0.14 | 3 | 54.2 | 620 | 0 | 6 | 1.6 | 0.25 | 54.9 | 6 | 0.3 | 0.05 | 52.9 |
| 6 | 10 | 119.5 | 117.0 | 2.5 | 0.25 | 2 | 93.9 | 530 | 0 | 5 | 1.4 | 0.28 | 95.2 | 5 | 1.1 | 0.22 | 83.8 |
| 1-6 | 68 | ..... | ..... | 17.7 | 0.26 | .. | 71.6 | 610 | .. | 32 | 9.8 | 0.31 | 79.4 | 36 | 7.9 | 0.21 | 70.4 |
| 1-3 | 34 | ..... | ..... | 11.7 | 0.34 | .. | 73.3 | 610 | .. | 15 | 6.1 | 0.40 | 82.8 | 19 | 5.6 | 0.27 | 72.2 |
| 4-6 | 34 | ..... | ..... | 6.0 | 0.18 | .. | 70.0 | 610 | .. | 17 | 3.7 | 0.22 | 75.9 | 17 | 2.3 | 0.14 | 68.6 |
| **Period $B_4$—With Drug** | | | | | | | | | | | | | | | | | |
| 1 | 11 | 128.0 | 126.2 | 1.8 | 0.16 | 5 | 119.8 | 640 | 300 | 5 | 1.6 | 0.32 | 89.1 | 6 | 0.2 | 0.03 | 127.5 |
| 2 | 9 | 94.9 | 92.5 | 2.4 | 0.27 | 3 | 80.2 | 630 | 300 | 4 | 1.2 | 0.30 | 80.7 | 5 | 1.2 | 0.24 | 79.9 |
| 3 | 9 | 81.2 | 78.7 | 2.5 | 0.28 | 3 | 73.0 | 540 | 300 | 4 | 1.1 | 0.28 | 64.2 | 5 | 1.4 | 0.28 | 77.3 |
| 1-3 | 29 | ..... | ..... | 6.7 | 0.24 | .. | 91.0 | 610 | 300 | 13 | 3.9 | 0.30 | 78.0 | 16 | 2.8 | 0.18 | 92.9 |
| **Period $B_5$—No Drug** | | | | | | | | | | | | | | | | | |
| 1 | 10 | 126.2 | 121.3 | 4.9 | 0.49 | 3 | 93.8 | 680 | 0 | 6 | 3.2 | 0.53 | 117.9 | 4 | 1.7 | 0.43 | 77.3 |
| 2 | 8 | 92.5 | 91.4 | 1.1 | 0.37 | 2 | 71.3 | 700 | 0 | 1 | 0.4 | 0.40 | 75.7* | 2 | 0.7 | 0.35 | 71.2 |
| 3 | 9 | 78.7 | 76.3 | 2.4 | 0.27 | 2 | 60.5 | 550 | 0 | 4 | 1.1 | 0.28 | 60.4* | 5 | 1.3 | 0.26 | 60.4 |
| 1-3 | 22 | ..... | ..... | 8.4 | 0.38 | .. | 74.2 | 640 | .. | 11 | 4.7 | 0.40 | 87.7 | 11 | 3.7 | 0.35 | 69.6 |
| **Period $B_6$—With Drug** | | | | | | | | | | | | | | | | | |
| 1 | 9 | 121.3 | 118.1 | 3.2 | 0.35 | 3 | 102.5 | 570 | 300 | 5 | 1.7 | 0.34 | 80.8 | 4 | 1.5 | 0.38 | 108.9 |
| **Period $B_7$—No Drug** | | | | | | | | | | | | | | | | | |
| 1 | 4 | 118.1 | 117.0 | 1.1 | 0.28 | 2 | 84.1 | 540 | 0 | 2 | 0.2 | 0.10 | 92.2 | 2 | 0.9 | 0.45 | 75.9 |

* Interpolated.

day period of maintenance diet without the drug, at which time the curves of basal metabolism were consistently flat at a minimum level. In contrast, in the latter 49 days of the 102 day period of maintenance diet with dinitrophenol the basal metabolism curves maintained a maximum plateau at 92.9 calories per hour. For the corresponding latter portions of the first periods of reduction diet without drug and reduction diet with drug, thirty-two and twenty-seven days respectively, the minimum level was 73.0 calories per hour and the maximum drug-effect level was 90.5 calories per hour. The difference between these minimum and maximum levels, 16.0 and 17.5 calories per hour respectively, are increases of 21 and 24 per cent where around 500 calories per day. Such a deficit could produce a loss of only 60 Gm. (2 ounces) of fat tissue per day. When it is recalled that our patients in the thirty-four day half period previously described, in which they received the so-called maintenance diets of 2,510 calories without drug, actually lost weight at the rate of 50 Gm. per day, it may be appreciated that the same rate of weight loss which is possible as a result of the use of dinitrophenol can be accomplished by only very slight modifications of the diets on which these persons have been maintaining their weights. In any event, the rate of weight loss obtainable by use of the drug is only from one fifth to one sixth of the rate of loss that is readily obtainable by diet alone.

### EFFECT OF DINITROPHENOL ON OXYGEN CONSUMPTION

With the figures dealing with the results that are theoretically possible from the use of the drug kept in mind, it is now important to discover what action dinitrophenol did have in our patients with respect to (1) basal metabolism, (2) skin changes and (3) rate of weight loss. In each patient in each dinitrophenol period there was a definite increase in the calculated basal metabolism. As aforementioned, the comparisons are made between the maximum plateaus of the curves of basal metabolism that occur in the latter halves of the dinitrophenol periods and the basic minimum levels of these basal metabolism curves in the latter portions of the preceding drug-free periods. In the majority of individual instances there was an elevation of calculated metabolism of from 7 to 18 calories per hour. The average elevation for six patients on the maintenance diet phase was 16 calories per hour. In the reduction diet phases, six patients increased the metabolism 17.5 calories per hour in the first dinitrophenol course; three patients, 20 calories per hour in the second course of the drug. Four patients obtained approximately the same increase in metabolism in successive dinitrophenol periods. However, all these calculations are based on the assumption that the increase in oxygen consumption which is actually observed bears the same relation to heat production that has been found in normal body metabolism.

This matter cannot be fully discussed at this time but there are many observations that cast suspicion on this basic assumption. The absence of alterations of pulse rate and blood pressure is noteworthy, even in the presence of basic metabolic rates that calculate from 70 to 80 per cent above the normal for the ideal weight of an individual. Very low respiratory quotients, several ranging from 0.60 to 0.52, have been noted especially in the low diet periods. These low respiratory quotients have been found in association with the highest basal metabolism calculations. In certain instances the elevation of the respiratory quotient to normal limits by the feeding of dextrose has resulted in a marked drop in the calculated heat production. Also acetone bodies have been found repeatedly in the urine under these conditions. These observations, taken in conjunction with the peculiarities of weight change that are described later, suggest that the drug may produce a qualitative alteration in the usual relationships of heat production to oxygen consumption and carbon dioxide production. If, therefore, oxygen may be consumed in some unusual manner, it is possible that the estimation of heat production by the indirect procedure of the measurement of oxygen consumption may not be permissible.

### EFFECT OF DINITROPHENOL ON SKIN

The untoward actions of dinitrophenol have been repeatedly described. The outstanding manifestations in our patients were cutaneous: warmth, sweating, pruritus and dermatitis. Sweating was most profuse in the period of dinitrophenol plus maintenance diet and definitely less in the subsequent periods, being absent in the fourth dinitrophenol period of patient 1. The sweating appeared in most cases before any significant elevation of the basal metabolism occurred. It was intermittent in most cases with respect to both time of day and day of drug. At the time of an acute attack, beads of perspiration ran from the body. Often the gowns and bed linen was changed two or three times at night. However, one patient who had a satisfactory elevation of basal metabolism in each of two periods had no sweating at all. It is open to question whether such excessive sweating is simply a manifestation of heat elimination or whether there is not a specific stimulation of the sweat glands. Pruritus was present in all subjects at some time. Although of little importance in the period of the maintenance diet with drug, it was very serious in four of the patients in the first period of the reduction diet with drug. In spite of the unusual attention that was given to the skins of these patients, in three patients extensive dermatitis developed, which necessitated stopping the experiment in two patients. It is also important to note the prompt cessation of the sweating and pruritus after the drug was discontinued. No symptoms other than cutaneous were noted that could consistently be attributed to the use of the drug.

### EFFECT OF DINITROPHENOL ON RATE OF WEIGHT LOSS

In the evaluation of the effect of dinitrophenol on the rate of weight loss, several factors must be considered. First of all, it may be noted that at the time at which the metabolism was stable at a maximum level due to the drug there was no increase in rate of weight loss as compared with the immediately preceding drug-free period in which the metabolism was stable at a minimum level. Observations are available of sixteen individual instances in which the rate of weight change in the latter part of a drug-free period of minimum metabolism may be compared with the rate of weight change in the latter part of the dinitrophenol period of maximum metabolism immediately following it: Six instances: $A_1$ latter half with $A_2$ latter half; six instances: $B_1$ with $B_2$; three instances: $B_2$ with $B_3$; one instance: $B_3$ with $B_4$ (tables 3 and 4). Ten phases with the drug showed drops in rate of weight loss of from 10 to 320 Gm., averaging 100 Gm. daily. One period showed no change. Five periods with drug showed increases from 10 to 110 Gm., averaging 60 Gm. daily. The average of all sixteen periods shows a decrease of 10 Gm. daily as a result of the use of the drug. Here is an apparent paradox that, with the increase in the oxygen consumption, the rate of weight loss decreases, and this in spite of terrific outpourings of sweat in some patients.

A partial explanation of this phenomenon is that the drug promotes the storage of water. Whether or not this storage results from direct toxic injury to the cells causing cloudy swelling cannot be decided as yet. The water storage phenomenon is most clearly visualized from the graphs of weight and of metabolism as illustrated in the chart. The slopes of the weight curves almost invariably flatten toward the middle of the dinitrophenol periods. The flat period is usually followed by a sharp drop in weight within one to two days after cessation of the drug. These facts are indicated less graphically by a comparison of the rate of weight change in the first half of a drug-free period with that of the second half of the preceding drug period. In twelve instances, data are available for the comparison of such successive half periods: Three instances: $A_1$ latter half with $A_1$ first half; six instances: $B_1$ with $B_1$; three instances: $B_1$ with $B_2$ (tables 3 and 4). For these twelve cases there was an average increase in rate of weight loss of 130 Gm. per day after the drug was stopped. In two instances there were decreases; in

one, no change, and, in nine, increases which in one case amounted to 500 Gm. per day. It should be noted that in the contrasted periods there were only slight variations in caloric intake and that in the periods of increased weight loss the metabolism was dropping rapidly to the basic level.

However, it still remains possible that the rate of fat destruction is actually increased in the dinitrophenol periods and that this phenomenon is obscured by the water storage. If that is true, the weight change in the latter part of a dinitrophenol period plus the weight change of the first part of the succeeding period in which water is poured out, divided by the total number of days, should give a rate of change greater than the rate in the basic drug-free period immediately preceding the dinitrophenol period. There are twelve individual instances in which it is possible to compare the rate of weight change of the stable latter part of a drug-free period with the rate of change of the combined phase of maximum drug effect and the phase of water release that follows immediately: Three instances: $A_2$ latter half with $A_3$ latter half plus $A_4$ first half; six instances: $B_1$ with $B_2$ plus $B_3$; three instances: $B_2$ with $B_3$ plus $B_4$ (tables 3 and 4). Of the twelve instances, six showed slightly greater and six slightly lessened rates of weight change in the dinitrophenol period as compared with the drug-free period. The value of the average deviation from the mean for these twelve observations is negligible. Our figures suggest, therefore, that dinitrophenol does not cause an increase in the rate of weight loss. Rather the use of the drug decreases the preexisting rate of weight loss, owing probably to its influence on the phenomenon of water storage. However, when the excess stored water is removed, as usually occurs within a few days after the drug has been discontinued, it is found that in the majority of instances no significant change has occurred in the rate of true weight loss that was characteristic of the dietary level employed before and during the dinitrophenol phase.

The influence of dinitrophenol on the nitrogen metabolism could not be determined in this study. The level of nitrogen intake was constant throughout the entire stay of the patients. The nitrogen in the urine and stools was determined for each three day period. In general, this nitrogen output approximated the intake. However, during the periods of gross sweating considerable nitrogen must have been lost through the skin. It is interesting to note that sweating had no consistent influence on the urinary nitrogen.

SUMMARY

In our patients, dinitrophenol in therapeutic doses produced an increase of oxygen consumption of approximately 20 per cent. Whether this disappearance of oxygen is a reflection of increased heat production or whether there is an alteration of the normal oxygen utilization due to the toxic action of the drug is not clear. It appears that there is a tendency of the body to store water under the influence of the drug. The drug readily produces skin reactions varying from moderate warmth and sweating to a toxic dermatitis. The question of a specific action on the sweat glands has been raised. The skin actions do not parallel the amount of drug ingested or the level of increase of oxygen consumption. As a method of producing weight loss by increasing the rate of energy output, the drug leaves much to be desired theoretically. Practically, in our series of patients no consistent augmentative effect of the drug on the rate of true weight loss could be demonstrated in association with either the maintenance or the reduction diets employed in this study.

CONCLUSIONS

1. The rate of true weight loss in obesity is determined by the difference between the intake and the output of energy.

2. The influence of dinitrophenol on the negative energy balance is small in comparison to what can be secured by even moderate diets.

3. The practical value of dinitrophenol as an aid in weight reduction is very questionable and, in view of the well known toxicity of the drug, its widespread use for this purpose should be discontinued.

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## A QUANTITATIVE STUDY OF THE VASOCONSTRICTION INDUCED BY SMOKING

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Since Buerger[1] described the disease that bears his name there has been controversy concerning the significance of smoking as a factor[2] in the cause and progress of the symptoms in thrombo-angiitis obliterans. Until recently, slight experimental attention had been given

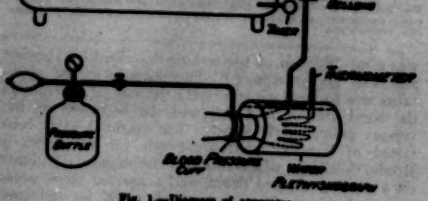


Fig. 1.—Diagram of apparatus.

to the effect of smoking on the peripheral vascular system. The studies dealing with these reactions indicate that vasoconstriction is induced by the use of tobacco. A fall in peripheral skin temperature after smoking has been reported by Maddock and Coller,[3] by Barker[4] and by Wright and Moffat.[5] These reports, as well as the volumetric studies of Simici and Marcu[6]

From the Surgical Laboratories of the Harvard Medical School at the Massachusetts General Hospital.

1. Buerger, Leo: Thrombo-Angiitis Obliterans: A Study of the Vascular Lesions Leading to Presenile Spontaneous Gangrene, Am. J. M. Sc. 136: 567, 1908.

2. Lewis, Sir Thomas: The Circulatory Disturbances of the Extremities, Philadelphia, W. B. Saunders Company, 1934, p. 279.

3. Coller, F. A., and Maddock, W. G.: Peripheral Vasoconstriction Produced by Tobacco Demonstrated by Skin Temperature Changes, Proc. Soc. Exper. Biol. & Med. 30: 467 (Dec.) 1932. Maddock, W. G., and Coller, F. A.: Anesthetic Vasoconstriction of Tobacco and Its Relation to Thrombo-Angiitis Obliterans, Ann. Surg. 98: 1041 (Dec.) 1933.

4. Barker, P. W.: Vasomotor Angiopathies of Tobacco Smoking, Proc. Staff Meet., Mayo Clinic, 8: 284 (May 10) 1933.

5. Wright, I. S., and Moffat, Doris: The Effects of Tobacco on the Peripheral Vessels of Smokers, J. A. M. A. 100: 318 (Aug. 4) 1934.

6. Simici, D., and Marcu, I.: Recherches sur l'hémodynamique périphérique. IV. Premiers considérations de la fumée de tabac chez l'homme, J. de physiol. et de path. gén. 29: 28 (March) 1927.

and of Bruce, Miller and Hooker[7] have shown quite convincingly that there is a decrease in the peripheral circulation during smoking. The experiments here reported were undertaken in an attempt to make a quantitative estimate of the reduction in the peripheral blood flow and to observe the duration of this reaction.

## METHOD

The determinations of the rate of peripheral blood flow in man were made by recording the changes in the hand volume. The apparatus, designed by Freeman,[8]

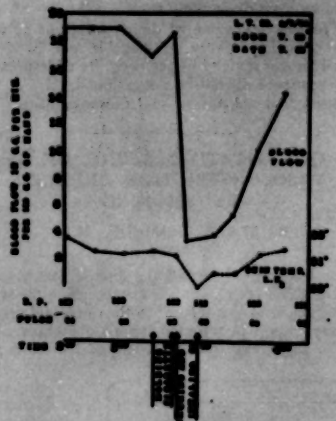

Fig. 2.—Effect of inhaling one cigaret. In all the graphs the black line indicates blood flow in cubic centimeters per minute per hundred cubic centimeters of hand and the dotted line indicates the peripheral skin temperature.

was a modification of the technic described by Hewlett and Van Zwaluwenberg.[9] The purpose of the apparatus was to measure accurately the rate of increase in the hand volume that followed the occlusion of the venous return at the wrist. The essential parts consisted of a water plethysmograph for the hand, a Brodie[10] bellows, which recorded the changes in volume on a moving smoked drum, and a narrow blood pressure cuff about the wrist, which could be suddenly inflated from a pressure bottle. As the pressure in the cuff was below diastolic blood pressure the arterial inflow was unimpaired, so that the immediate increase in the hand volume was an accurate index of the rate of blood flow. The rate of the peripheral blood flow was computed from the drum and expressed as cubic centimeters of blood flow per minute per hundred cubic centimeters of hand volume.

The subject of the experiment lay on his back with his right hand in the apparatus. He was clothed and was covered with a thin woolen blanket. The room temperature was kept at about 23 C. and the water bath was at hand temperature, which is usually between 30 and 33 C. Psychic stimuli were excluded as far as possible. For the first half hour of each experiment, records were made to determine the normal blood flow. The patient then smoked, and further records were made during and after the period of smoking. The skin temperature of the fingers or toes was noted with a Tycos dermatherm.[11] The blood pressure and pulse were also recorded. Fifteen normal men (mostly medical students) and five patients from the peripheral circulatory clinic of the Massachusetts General Hospital served as subjects. All were habitual smokers but had not smoked for at least three hours before the experiment. Four common brands[12] of cigarets and one brand of "denicotinized" cigaret[13] were used. There were eighteen experiments with cigarets, five with a pipe and one with a cigar.

## RESULTS

The results were uniform and, with one exception, showed a marked reduction of the peripheral circulation both in normal individuals and in patients with thrombo-angiitis obliterans.

*Effect of Inhaling Cigarets.*—The first group of tests was made with normal subjects to observe the effect of inhaling one cigaret. Figure 2 illustrates a characteristic result. The subject of this experiment was a medical student, aged 20, who habitually smoked and inhaled from twenty to twenty-five cigarets a day. The graph shows a sudden drop in the rate of the peripheral blood flow during the period of smoking, and at the end of forty minutes the flow was still partially depressed. There was a rise in blood pressure from 100/65 to 112/70 millimeters of mercury. The heart rate increased from 52 to 60 beats per minute. Four similar experiments showed a decrease in blood flow ranging from 57 to 83 per cent. In two cases the response lasted fifty-five minutes, and in two cases the experiment was concluded in forty minutes after smoking while the blood flow was still reduced. The greatest rise in systolic blood pressure was 20 mm. of mercury, and the smallest 10. The increase in heart rate ranged

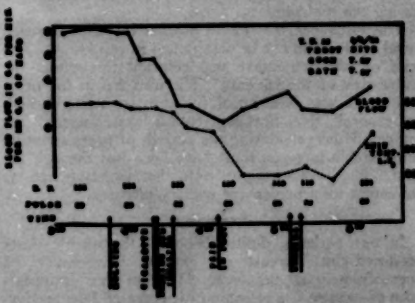

Fig. 3.—Effect of inhaling two cigarets fifty minutes apart.

from 6 to 20 beats per minute. All the subjects showed a drop in peripheral skin temperature.

In order to observe the effects of successive cigarets, two experiments were conducted while a patient smoked and inhaled two cigarets fifty minutes apart. Figure 3 gives the results of one of these tests. The subject of these experiments was a patient, aged 33, both of whose feet had been frost bitten fifteen months previ-

7. Bruce, J.; Miller, J. R., and Hooker, D. R.: The Effect of Smoking upon the Blood Pressure and upon the Volume of the Hand, Am. J. Physiol. 24:104, 1909.
8. Freeman, N. E., to be published.
9. Hewlett, A. W., and Van Zwaluwenburg, J. G.: The Rate of Blood Flow in the Arm, Heart 1:87, 1909.
10. Brodie, T. G.: The Determination of the Rate of Blood Flow through an Organ, Seventh Internat. Physiol. Cong., August 1907.

11. Taylor Instrument Company.
12. Camel, Chesterfield, Lucky Strike and Old Gold.
13. Kents.

ously. The toes had been amputated at that time. Two weeks before the present entry, pain and infection developed in the left foot. Smoking produced a decrease in the peripheral circulation after each cigaret. Following the first the blood pressure rose from 102/70 to 115/80 mm. of mercury, and the pulse rate from 82 to 90 beats per minute; after the second the blood pressure went from 110/80 to 118/80, and the heart rate from 82 to 92. The graph also shows a slight reduction in the flow while the subject was holding the unlighted cigaret. Fifteen minutes after smoking, the patient complained of pain in his foot. This was accompanied by a further vasoconstriction. At the end of the experiment, thirty minutes after the second cigaret had been smoked, the flow was 60 per cent below the original level.

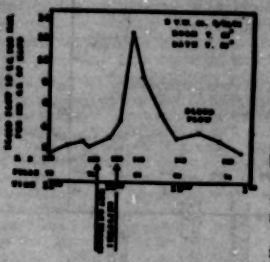

Fig. 4.—An atypical reaction, showing an increase in the peripheral blood flow.

Out of the twenty individuals tested, all but one showed a clear cut vasoconstrictor response. In one subject, however, there was a fourfold increase in the peripheral blood flow, following the inhalation of one cigaret. Figure 4 shows this experiment. The subject was a medical student, aged 25, who never inhaled and who smoked only four or five cigarets a week. He experienced marked sensations of dizziness during the experiment. The heart rate went from 76 to 84 beats per minute, and the blood pressure from 108/70 to 120/70 mm. of mercury. The reaction lasted twenty-eight minutes. Such a response is distinctly unusual but has been observed by Simici and Marcu,[9] and also by Moffat [14] in three out of 130 cases.

*Inhaling versus Noninhaling.*—A group of experiments was conducted to determine the difference in reaction between inhaling and not inhaling. Three medical students and one patient with thrombo-angiitis obliterans, which was limited to the feet, were tested. In each case the first cigaret was not inhaled and the second was inhaled to a degree customary for the subject. When the cigaret was not inhaled there was a vasoconstrictor response, but the reaction lasted for only fifteen minutes. The changes in heart rate and blood pressure were insignificant. When the second cigaret was inhaled there was a marked blood flow reduction, which lasted over one hour. The pulse went from 66 to 88 beats per minute and the blood pressure from 96/70 to 108/80. The graph (fig. 5) also shows slight vasoconstriction associated with pain in the foot following the first cigaret.

Three normal subjects who were tested reacted in a similar manner. Figure 6 illustrates one of these experiments.

*"Denicotinised" Cigarets.*—In order to determine whether the reaction to smoking could be correlated with the amount of nicotine in the tobacco, experiments were conducted with "denicotinised" cigarets. The brand used contained 0.79 per cent nicotine as contrasted with 2.0 per cent nicotine present in the average cigaret.[15] One ordinary cigaret weighing about 1 Gm. would contain roughly 20 mg. of nicotine. Baumberger [16] has shown that nicotine occurs in the smoke to the extent of 0.57 per cent of the weight of the tobacco. Of this, 88.2 per cent is absorbed on inhaling.[17] This means that the smoker retains between 2 and 3 mg. of nicotine from inhaling one cigaret. Figure 7 gives the reaction of a normal subject, aged 32, while smoking a "denicotinised" cigaret without inhaling. There was no vasoconstrictor response. The inhalation of a second treated cigaret induced a slight reduction in the peripheral blood flow, which returned to normal in fifteen minutes. The pulse rate and blood pressure remained constant. When an ordinary cigaret was inhaled there was a marked reduction in the blood flow, which after twenty minutes was still greatly depressed. The blood pressure rose from 100/60 to 110/75 mm. of mercury, and the pulse from 54 to 60 beats per minute. There were four experiments of this type, which demonstrated a shorter vasoconstrictor response with the "denicotinised" cigarets than with the other brands.

*Pipe Smoking.*—Five tests were carried out while the subject smoked a pipe. Three were normal individuals and two were patients with thrombo-angiitis obliterans. The results were not as conclusive as with cigarets, probably because of the difference in the way each individual smokes a pipe. In each case there was a moderate reduction in the blood flow during puffing on a pipe. There was no change in heart rate or blood pressure. One of the subjects with thrombo-angiitis obliterans inhaled the smoke and demonstrated the same sudden vasoconstriction that follows inhaling a cigaret.

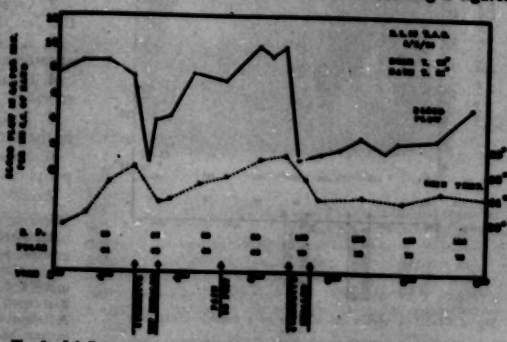

Fig. 5.—Inhaling versus not inhaling in a patient with thrombo-angiitis obliterans.

*Cigar Smoking.*—One experiment done while a normal subject smoked a cigar showed a 30 per cent reduction in blood flow during puffing and a 75 per cent reduction after moderate inhaling of the smoke.

14. Moffat, Dana: Personal communication to the author.

15. Bull. 307, Connecticut Agriculture Experimental Station, New Haven, Conn., May 1929. The Nicotine Content of Tobaccos, Bureau of Internal Revenue, J. A. M. A. 93:1 307 (July 26) 1929.

16. Baumberger, J. P.: The Absorption of Nicotine from Tobacco Smoke, J. Pharmacol. & Exper. Therap. 23:1 35 (Feb.) 1924.

17. Baumberger, J. P.: The Amount of Smoke Produced from Tobacco and Its Absorption in Smoking as Determined by Electrical Precipitation, J. Pharmacol. & Exper. Therap. 21:1 47 (Feb.) 1923.

*Effect on Patients with Thrombo-Angiitis Obliterans.*—There were five experiments carried out on patients with thrombo-angiitis obliterans, which chiefly involved the feet. All demonstrated the characteristic vasoconstrictor response (fig. 5). The reaction was similar in degree and duration to that obtained in normal subjects. One patient, however, differed slightly from the rest in that there was only a 20 per cent reduction in the blood flow, which returned to its previous level in twenty minutes. In this case there was a large element of vasospasm, as indicated by the marked rise in skin temperature after paravertebral procaine hydrochloride block done by Dr. J. C. White. It is quite possible that chronic vasospasm may modify the characteristic acute vasoconstrictor response to smoking.

## COMMENT

These experiments have shown that smoking brings about a sudden marked reduction in the rate of the peripheral blood flow, an elevation of blood pressure, and an increase in heart rate. Haggard and Greenberg [10] have recently observed that smoking also elevates the blood sugar level. These reactions, induced by smoking, appear to be manifestations of the response of the sympathetic nervous system to mild stimulation.

In all the experiments, the blood flow reduction was greatest immediately after smoking. The degree and duration of the vasoconstriction could be correlated with the amount of nicotine absorbed. When a cigaret was inhaled, the rate of peripheral blood flow was at least halved and remained partially depressed for about sixty minutes. If the smoke was not inhaled, the

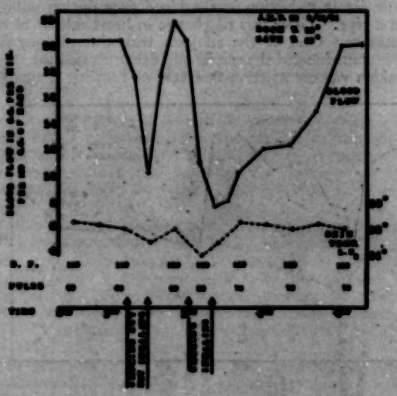

Fig. 6.—Inhaling versus not inhaling in a normal subject aged 24.

vasoconstrictor response was almost as great but the reaction lasted only fifteen minutes. "Denicotinized" cigarets produced a less marked and shorter response than ordinary cigarets. Pipe smoking gave rise to moderate vasoconstriction during puffing and to a marked reaction after inhaling the smoke. One experiment with a cigar demonstrated the vasoconstrictor response. Patients with thrombo-angiitis reacted to smoking in the same manner as the normal subjects.

10. Haggard, H. W., and Greenberg, L. A.: Effects of Cigaret Smoking upon Blood Sugar, Science 79:145 (Feb. 16) 1934.

There is no evidence from these experiments that smoking is an etiologic factor in thrombo-angiitis obliterans, but it seems clear that smoking must have a deleterious effect on patients who have already acquired the disease. If such a patient should smoke one cigaret an hour he would depress his peripheral circulation during the entire day. It is of the utmost importance that patients with thrombo-angiitis obliterans should

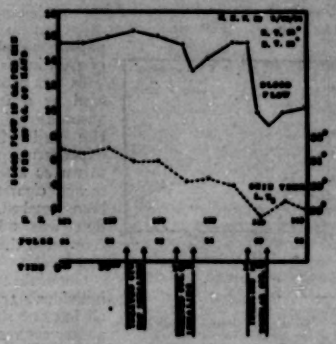

Fig. 7.—"Denicotinized" cigaret followed by an ordinary cigaret.

forego the use of tobacco, as it adds unnecessary insult to the already existing injury by further increasing the peripheral circulatory insufficiency.

## CONCLUSIONS

1. Smoking and inhaling cigarets causes a sudden marked peripheral vasoconstriction, which lasts for about sixty minutes.

2. Cigarets when not inhaled produce vasoconstriction but the reaction lasts only fifteen minutes.

3. A "denicotinized" cigaret produces less effect than an ordinary cigaret.

4. Cigar and pipe smoking also induce vasoconstriction.

5. Patients with thrombo-angiitis obliterans respond in the same manner as normal subjects.

6. Smoking is contraindicated in patients with peripheral vascular insufficiency.

Massachusetts General Hospital.

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**Knighted for Removing a Wen.**—Sir Astley Cooper, the greatest and most active London surgeon of the first quarter of the nineteenth century, was an anatomic enthusiast. Cooper, in 1794, at the age of 16, was apprenticed to Mr. Henry Cline, a surgeon and teacher of anatomy at St. Thomas's Hospital. A fellow student of these days told: "Mr. Cline's class now became so large as to crowd and make the dissecting room uncomfortable. Astley disliked this, since it hurried our work, and he suggested that we should remove our subjects to Mr. Cline's house, with whom we also resided. The room Astley and I occupied was in the front of the house, with only one window in it. Here we carried on our dissections without interruption for the remainder of the winter." This zeal for dissection remained with Sir Astley (he was knighted because he successfully removed a wen from the scalp of George II) throughout his life, and even after he became the great surgeon of Guy's Hospital he continued daily to dissect at his home.—Gussenhauer, A. F.: Bootlegging Bodies: A History of Body-Snatching, *Bull. Soc. M. Hist. Chicago* 4:233 (Jan.) 1935.

# EXTENSIVE DIPHTHERITIC MEMBRANES REMOVED AND PHOTOGRAPHED

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BALTIMORE

The word diphtheria brings to mind a picture of an infection of the pharynx, nose or larynx. Pieces of diphtheritic membrane in the form of casts of the trachea, which at times show the beginning of the bifurcation, are frequently knocked loose and expectorated during the process of intubation. To acquaint the profession with the fact that the diphtheritic infection can extend even beyond the tracheal bifurcation is my purpose in this report of two cases.

CASE 1.—G. C., a white boy, aged 6½ years, was brought in a moribund condition, Oct. 27, 1934, to Sydenham Hospital, the communicable disease hospital of the Baltimore City Health Department. The child came from a neighboring rural area. The temperature was 98 F. (rectal), the pulse was so rapid and thready that it could not be counted, and respirations were uncountable. The child's face was cyanotic, the lips were blanched, and he was gasping and fighting for breath. Laryngeal intubation was performed, but the O'Dwyer tube became blocked and it was necessary to remove it at once. A fresh tube was inserted, giving the child only a fair degree of relief from the dyspnea, yet he was so much improved over his condition on admission to the hospital that it was decided to await further developments. Sixty thousand units of diphtheria antitoxin was given intramuscularly and 10,000 units in dextrose intravenously. Cultures from the nose and throat were taken. The patient was put to bed under the ordinary nursing care for a diphtheria patient.

Eight hours following the intravenous dextrose and antitoxin, the temperature rose to 103.6 F. (rectal), the pulse dropped to 140, and the respirations came down to 30 per minute.

On examination of the blocked laryngeal tube, it was found to be occluded by a piece of membrane that extended nearly the whole length of the lumen of the tube. A piece of this membrane was placed in a tube of Loeffler blood serum and incubated.

An attempt was then made to obtain a history of the onset, which brought out the fact that the child apparently had been all right until the night before admission. The parents had noticed that he could not breathe properly at that time and called a physician, who prescribed for the boy and told the parents to call him if the child was not better in two hours. After vomiting, induced by the medicine prescribed, the child was slightly better and the physician was not called until the next morning. On responding to this call, the physician found the child in a moribund condition and rushed him to the hospital.

The child's father, on being questioned a little more carefully, stated that the boy had been suffering with a cold for several days. Since he did not appear feverish, seemed to be playing normally and attended school as usual, little attention was paid to the fact that he had a cold. Even when his voice became hoarse, his condition was not considered of serious import, nor was medical aid sought until real difficulty in breathing developed. The questioning further brought out that the boy had not been immunized against diphtheria either by toxin-antitoxin or by toxoid.

The child passed the first night in the hospital breathing harshly and exhibiting a considerable degree of respiratory pull but showing evident relief because of the intubation. About 9 o'clock the next morning, October 28, more marked difficulty in breathing was present. It was noticeable that there was greater difficulty in exhaling than in inhaling. Extubation was done, but his respirations were even more labored without the laryngeal tube than with it, so intubation was done again. As this procedure did not help and as he was beginning to show marked cyanosis, it was determined to do a tracheotomy.

From the Baltimore City Health Department.

A medium low tracheotomy was rapidly performed. Just about the time the trachea was opened, the respirations ceased. Spreaders held the cut in the trachea open and artificial respiration was begun. Stimulants were given intramuscularly and epinephrine hydrochloride intracardially, and suction was applied directly into the trachea. It was found impossible to force air into or out of the lungs, and the child died on the table.

After death an examination was made through the tracheotomy opening and by means of a pair of forceps a piece of membrane was delivered into the wound. By carefully and gently pulling and teasing, the cast of the bronchial tree as shown in figure 1 was brought through the wound. This explains fully why it had not been possible to force air into the lungs, although there was an opening in the trachea sufficiently large to do so.

The cultures taken from the nose, the throat and the piece of membrane, after incubation over night, were reported from the laboratory as positive for the Klebs-Loeffler bacillus.

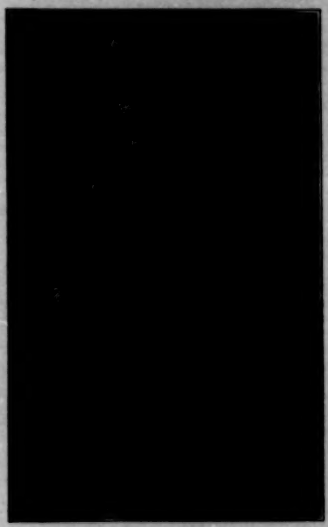

Fig. 1 (case 1).—Diphtheritic membrane removed after death.

CASE 2.—H. G., a white girl, aged 9 years, admitted to Sydenham Hospital, Jan. 27, 1935, was in an extremely toxic condition. Like the preceding patient, she was a county child brought to the city for hospitalization. While she was breathing noisily and her color was somewhat cyanotic no operative intervention was deemed necessary, as she seemed to be getting a sufficient amount of air through the partly obstructed air passage.

She had received 20,000 units of diphtheria antitoxin prior to being sent to the hospital. On admission the temperature was 104.4 F. (rectal), pulse 150 and respirations 40. A second dose of 20,000 units of diphtheria antitoxin in dextrose was given intravenously and this was followed by 40,000 units intramuscularly. Cultures of the nose and throat were taken and sent to the laboratory. The child was put to bed under constant nursing supervision. She did not respond to treatment but gradually became worse and died, January 28, a little more than twenty-four hours after admission.

Questioning of the parents brought out the fact that the child had never been immunized against diphtheria and that

she had been perfectly well until January 16, at which time she complained of a sore throat. She had little fever, no nausea, no vomiting and no rash. Under local treatment the throat infection seemed to improve. So much better did the child get that she was allowed to be up and about. Six days later, January 22, the child became hoarse. She gradually became worse and on January 27 help was called in, the diagnosis of diphtheria made, the initial dose of 20,000 units of antitoxin given, and the patient sent to the hospital.

The next morning the laboratory reported the cultures from the nose and throat as positive for Klebs-Loeffler bacilli. Saline washings of these cultures were injected intradermally into a guinea-pig for virulence and later reported as positive.

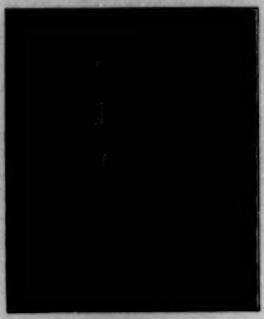

Fig. 2 (case 2).—Diphtheritic membrane removed after death.

An autopsy was performed. The right lung was solid and airless, and the pleural cavity contained 1,000 cc. of clear fluid. The left pleural cavity contained no fluid. The left lung contained air except for small areas of hemorrhagic consolidation in the margin of each lobe. The heart appeared normal on gross examination, and the larynx, trachea and lungs were removed intact.

When the trachea was opened, diffuse congestion and edema were noted through its entire length with small adherent patches of membrane scattered over the surface of the mucosa and firmly attached to it. Just above the bifurcation a continuous membrane appeared attached to the mucosa of the left bronchus in a delicate layer and extending to the main branches. On the right side the membrane was very thick and practically filled the entire right bronchial tree. This membrane was carefully dissected out and photographed (fig. 2).

### COMMENT

The only illustrations of specimens in the literature that I have seen that resemble the ones here presented were brought to my attention by Dr. J. E. Gordon, formerly of the Detroit City Health Department. These are to be found in an article by von Bókay.[1]

The cases here reported teach two lessons. First, they show just how insidiously diphtheria may begin and what a firm hold it may get on its victim before the seriousness of the case is realized. In the first case the child went unattended because he appeared to go about his play and school activities normally. The parents thought he had "just a cold." In the second instance the gravity of the illness was minimized because the child seemed to improve under local treatment.

Secondly, the cases show how far reaching diphtheria can be. The first picture reveals an almost perfect cast of the bronchial tree of a 6 year old child. It extends from the larynx down past the bifurcation and on one side divides again for upper and lower lobes, and finally reaches the small subdivisions of the lungs. The second picture shows a membrane beginning at the bifurcation and extending throughout the right bronchus, which it filled so completely that the right lung did not contain any air.

1. von Bókay, J.: Die Diphtherie seit Bretonneau, Ergebn. d. inn. Med. u. Kinderh. 43: 592-593, 1932.

## HEREDITARY HERMAPHRODITISM

### REPORT OF THREE CASES

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This series is presented as a contribution to the interesting study of genetics, in the hope that discussion will follow from those especially qualified to tell more about its vagaries.

I do not feel inclined to delve into the mysteries of embryonic development. It is for the more competent to discuss the chromosome complex, the metabolic rate as an influence in sex determination and other reputed factors of genesial control.

Since true bisexuality, in which one individual possesses all the functions of both sexes, is a condition of mooted existence, the term hermaphroditism used in the text should be accordingly interpreted. I do think, however, that the ordinarily used prefix of pseudo in the nomenclature is inept and the final diagnosis pseudohermaphroditism is used only as a conventional acceptance. Either of the terms imperfect hermaphroditism or incomplete hermaphroditism might more aptly define the anomalous condition.

The three cases here reported are from a total of five that occurred in one family. The two other children in whom this occurred are dead. As will be noted from the accompanying table, there were six members of the family, three male and three female. The parents were normal. Nothing is known of like abnormalities in any of the preceding generations. Forty children were born to the six members of the family. Five of them were hermaphrodites. Four were pre-

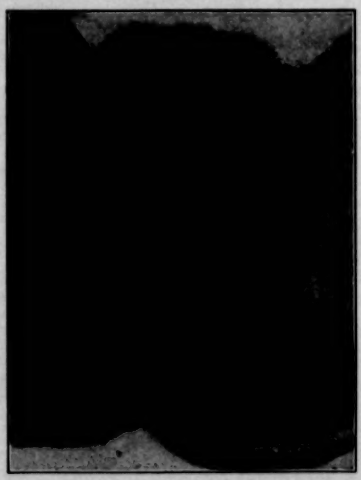

Fig. 1 (case 1).—Appearance of vulva five weeks after operation.

Dr. McDonald Orman assisted in all the operative work. Mr. Earnest of the Methodist Hospital and Dr. Lechenger of the Hermann Hospital made the photographic studies, and the Methodist and Memorial hospitals gave a large amount of clinical assistance.

dominatingly female, and one, who died at 18 months of age, was considered a boy but was possessed of a vagina and other female characteristics. There have been thirty-six grandchildren and they were all normal.

The most remarkable feature of this study is the prompt and very material response of nature to such apparently trivial stimuli in the righting of her previous errors, with consequent development of functions for

Fig. 2 (case 1).—Vaginal speculum in place five weeks after operation.

such a long time in abeyance. This will be especially noted in case 3, the 24 year old subject who had never presented any symptoms of menstrual effort but who had a perfectly normal flow just twenty-five days after amputation of the penis. The disappearance of the facial hairs followed almost as promptly.

*Occurrence of Hermaphroditism in Children of the Six Members of a Family*

| | |
|---|---|
| Male | Four children; all normal |
| Male | Three children; all normal |
| Female | Eight children; all normal |
| Female | Nine normal children; one hermaphrodite (dead) |
| Female | Three normal children; two hermaphrodites (one dead) |
| Male | Eight normal children; two hermaphrodites (both living) |

The parents are normal. Nothing is known of any abnormalities of the grandparents or in preceding generations.

Of forty children born to the six members of the family, five were hermaphrodites, and three of these are subjects of this report. There are thirty-six normal grandchildren.

These patients are all of good mentality, alert and with no evident quirks in conduct. The oldest is a college graduate, her sister a high school graduate and their 9 year old cousin a fourth year student. They are clean minded and there is no suspicion of perversion. They have given full cooperation in the presentation of their unusual and unfortunate condition and are to be commended for their intelligent helpfulness. Their observation will be continued.

## REPORT OF CASES

CASE 1.—*History.*—D. F., aged 19, of Houston, came for relief of frequent attacks of priapism, failure to establish menstruation and "nervousness" due to disturbed psychophysical relations. The final diagnosis of the case was pseudohermaphroditism and subacute appendicitis.

The patient had had the usual diseases of childhood, with no serious diseases or injuries. The mentality was good; she was very alert but had periods of depression during which she was morbid and felt resentful of her anomalous sex condition.

The patient was a high school graduate. She stated that there was a slight vaginal discharge of bloody character about six months before. This was the only occasion on which a discharge of any kind had been noticed. She did not remember that she had any of the usual premonitory symptoms of menstrual attempt at any time. She had consulted a number of physicians during the last three years and had been given treatment by some of them for promotion of ovarian function, but without material impression. She was brought to me by her father on her demand that the penis be amputated, failing which she intended to commit suicide. There was no suspicion of perversion.

The family consisted of the father, living and in good health; the mother, living and well; five brothers, living and well, and four sisters, living and well, one with the same abnormal condition that the patient had. She had three hermaphroditic cousins, two of whom were dead.

*Physical Examination.*—The patient weighed 105 pounds (47.6 Kg.) and was 62 inches (157 cm.) tall. There was poor muscular development; she was bony and angular. The cardiovascular system was normal. The blood pressure was 105 systolic, 75 diastolic. The reflexes were normal in response. The blood picture was essentially negative. She was very masculine in appearance; the voice was coarse and unusual. The jaws were of the square masculine type and the teeth were masculine.

There was a heavy growth of hair on the face, especially on the upper lip and chin. The patient had been accustomed for several years to use depilatories, pull out hairs with tweezers and shave. The breasts were flat, without mammary development; there were slightly pigmented centers but no nipples. The shoulders were square; the legs were masculine in formation. The hips were narrow and the waist was thick.

Fig. 3 (case 2).—Normal glans and prepuce; no frank vaginal outlet.

In fact, the whole appearance was decidedly masculine, but there was evidence that studied attempts were being persevered in to present a feminine appearance; for instance in her long curly hair and in dress.

There was a well formed penis, of usual adult size, with a normal, somewhat elongated prepuce and well formed glans.

It was situated in the normal position of the male penis. The anatomic structure was normal, except that the urethra was located below the base; that is, hypospadias. The labia were rudimentary, especially the labia minora. The vagina occurred as a horizontal slit but with normal capacity. No testes were found. An attempt was made to determine possible undescended testes, but no inguinal canal could be made out.

Fig. 4 (case 2).—Appearance at operation after shaving.

A virgin speculum was used and a uterine sound introduced to a distance of 3 inches (7.6 cm.). The uterus, somewhat smaller than normal, was found in its correct position.

*Operative Record.*—At Memorial Hospital, March 21, 1934, under gas-ether anesthesia, a midline incision was made and the abdomen explored. A deviation from the normal was found in the distribution of the colon, in that there was no

Fig. 5 (case 2).—Showing small opening at base of penis barely sufficient to accommodate urethral os.

ascending portion, the ileocecal junction occurring just under the lower border of the liver. The appendix was unusually long and in a state of subacute inflammation; it was removed. The uterus was in its proper location and, while not infantile, was incompletely developed. On the left, a large cystic ovary and a normal patent tube were found. There was no right tube or ovary. Attachment of the uterus on this side was by a rudimentary band, apparently of the broad ligament. No testes were present. There was no prostate. The abdomen was closed and an attempt made to improve the vaginal outlet. The penis was amputated, with enough left at the base to provide a possible substitute for the clitoris, and with the idea in mind to protect the urethral canal. The perineum was incised for correction of the horizontal opening of the vagina to the vertical. The vaginal mucous membrane was freed and sutured to the skin.

Recovery from operation was rapid and uneventful. The patient left the hospital on the eighth day, and healing was by primary union. The mons gave a normal appearance. The vagina was practically normal, the only indication of the former state being scars within the vestibule of the vulva, which however did not seem sufficiently contractile to interfere with a capacity for intercourse.

The attitude of the patient was immediately improved. She became optimistic almost over night. At every visit to the office she had some new feature of improvement to report, and, at times her enthusiasm led her to exaggeration. However, her development has been little less than sensational. She no longer uses depilatories. The beard has practically disappeared,

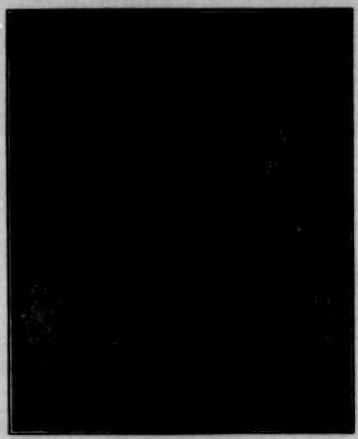

Fig. 6 (case 2).—Present appearance; capacity of vagina sufficient for introduction of virgin speculum.

and the face is much smoother. The breasts have developed to the size of small lemons, and the nipples are prominent. Her voice is less masculine but not yet as satisfactory as desired. She is quite satisfied with her condition; she attends social functions and appears interested in the young men of the neighborhood.

*After-Treatment.*—Within two weeks after the operation, administration of medicines calculated to promote or develop ovarian function was begun. First, theelin was given in daily doses for twelve days; then anterior pituitary-like principle from the urine of pregnancy was administered three times a week for two weeks. A rest period of two weeks followed. Theelin in daily doses was again given and on June 11 she began to have cramps, headache and backache. She was nauseated and complained of vertigo. She fainted several times. The medicine was discontinued and an attempt was made to improve her general condition. July 1, treatment was resumed, theelin being given in daily doses. July 11 she had a menstrual showing. The flow was intermittent, of bloody character and continued for ten days. It was not normal but definitely menstrual. She will continue to receive six or eight doses of theelin just prior to the expected menstruation for some time and will be kept under observation.

CASE 2.—*History.*—D. E., aged 9 years, of Daisietta, Texas, was given a final diagnosis of pseudohermaphroditism and subacute appendicitis.

There were no symptoms of disease, but the parents presented the patient for determination of predominant sex and for such measures as might seem indicated after exploratory operation. She had been presented to the late Dr. Thompson's

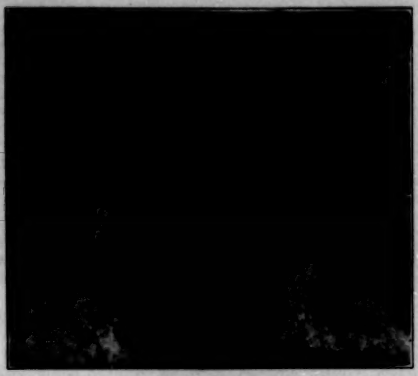

Fig. 7 (case 3).—Appearance of external genitals.

clinic at the Medical Department of the Texas State University when she was 9 months old, and it was his announced opinion that she had no vagina. He did some sort of exploration of the external genitalia, of the nature of which there is no record and of which the family is uninformed. She was apparently normal in other respects and except for an attack of diphtheria in earlier life had no history of consequence. She was mentally alert, learned easily and was in the fourth grade at school.

The family consisted of the father, living and well; the mother, living and well; three sisters, living and well, and one dead. This child was a hermaphrodite, apparently predominatingly female, and died at 3 years of age. She had three cousins who were hermaphrodites; one of them is dead.

*Physical Examination.*—The patient was healthy appearing and of advanced development; in most respects she showed the maturity of one at least two years older. She looked decidedly feminine, with well developed mammary glands, rounded hips and legs of good feminine contour. The general physical condition, including the lungs, cardiovascular system, kidneys and blood, denoted no pathologic condition. The facial expression was that of a girl. There was a penis much larger than is ordinarily found in a boy prior to the age of puberty. It was well formed and apparently of normal anatomic structure, except for the urethra, which appeared in hypospadias in a very small opening at the base. This opening was barely sufficient to accommodate the urethral os. There was no frank vaginal canal. The pubic hairs showed the usual male distribution and were very profuse. The voice was feminine but showed an inclination to be squeaky and to break, a characteristic often noted in boys just reaching puberty.

*Operative Record.*—At the Methodist Hospital, June 13, 1934, under gas-ether anesthesia, a midline incision was made and the abdomen explored. The tubes and ovaries were normal. The uterus was imperfectly developed, especially in view of the physical prematurity otherwise. The appendix was elongated, enlarged and in a state of chronic inflammation. The penis was of apparently normal male formation, except for the urethra, which was situated at the base (hypospadias). There was no evidence of a preexistent vaginal outlet that had become occluded, nor was there any scar tissue in the perineal area. After deep perineal incision a vagina was found leading to the cervical os. There were no testes. The appendix was removed. The penis was amputated, care being taken to preserve urethral integrity and to assist in formation of the vestibule. A plastic operation was done for the establishment of the vulva.

*Postoperative Record.*—There was nothing noteworthy in the postoperative history. Healing was rapid and satisfactory. Care was taken to preserve the vaginal outlet by packing with sterile strips of petrolatum gauze. She has been under observation at regular intervals since the operation and will continue to be until the establishment of the menses, which is confidently expected within a year. Her sisters began menstruation at 10 and she gives promise to be just as early. The vagina is now of normal appearance and the caliber is about what could be expected of a girl of her age. I have introduced a virgin speculum without difficulty and see no reason to anticipate contraction. However, this feature will be looked after in the future. She is now apparently a normal girl, and I have advised that her past sexual anomalies never be discussed with her.

CASE 3.—*History.*—M. F., aged 24, of Houston, applied for relief from increasingly frequent attacks of painful priapism, sexual upset due to psychophysical disharmony, failure to establish menstruation, and apparent bisexuality. The final diagnosis in this case was pseudohermaphroditism and subacute appendicitis.

The patient had had occasional pain in the right lower abdominal quadrant, but not sufficiently severe to cause her to seek relief. There had been the ordinary diseases of childhood. The tonsils had been removed seven years before. There had been no serious diseases or injuries. She had always considered her general health good and she felt strong. She had never menstruated, nor had she ever had any of the usual premonitory symptoms of menstrual attempt. During the attacks of priapism the penis became very erect and the condition persisted for several hours. At these times she was tor-

Fig. 8 (case 3).—Showing prepuce and glans.

tured with extreme sexual desire, without the ability to determine the preferred sex. She had been tempted to seek relief by means of self abuse but stated that she had never yielded. Until her sister, of like abnormality, was operated on, she, according to her statement, had determined to accept her strange lot and make the best of it. She was working as a domestic and endeavoring to occupy her mind with educational reading. She expressed her situation as that of a "mule" without hope or promise beyond the day's labor. It was her

belief that the male characteristics predominated, especially since the penis appeared to be making increasingly insistent demands for sexual satisfaction. Her hermaphroditic sister and a cousin with a similar affliction had both been recently operated on by me for sex determination and for such changes in sex organs as appeared advisable. She was quite intelligent and there appeared to be no suspicion of perversion.

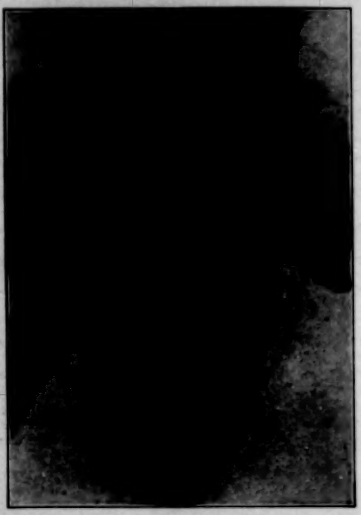

Fig. 9 (case 3).—Vaginal vestibule five weeks after operation.

*Physical Examination.*—The patient was well developed, with facial appearance decidedly masculine, but the body formation, with some exceptions, was that of a female. The mammary glands were not developed, but the nipples were practically normal in appearance. She had a heavy beard, which she had been accustomed to remove by shaving and the use of tweezers. The distribution of hair was masculine throughout. There was a well formed penis of ordinary adult size, a normal prepuce and glans. There was no urethral portion, the urethra being in the position of hypospadias; that is, at the base. The vagina was of normal proportion, but the labia were rudimentary. A hymen stretched across the posterior vaginal outlet. The uterus, in normal position, was not of full adult development. The legs, waist, hips and body generally, with the exception of the chest, which had the flat masculine formation, were female in contour. The legs and ankles were especially shapely. The physical condition was found good.

*Operative Record.*—The patient was operated on at the Memorial Hospital, July 5, 1934. Under gas-ether anesthesia a midline incision was made and thorough exploration done. The appendix was in a state of chronic inflammation, elongated and greatly enlarged, and was removed. There were two normal ovaries and two tubes, which were patent. The uterus was in proper position but not fully developed. There were no testes and no prostate. The abdomen was closed and the penis was amputated.

*Postoperative History.*—There was a rapid and satisfactory recovery, without unusual incident. She left the hospital by ambulance on the fifth day. Healing was by primary union. No treatment was given for induction of the menses, since a normal flow was initiated on July 30, just twenty-five days from the time of the operation. It lasted six days and was of good character, free and without pain. There was some head fulness and backache. The breasts showed considerable development, and the facial hairs were fewer. In the belief that the medicines given her sister for promoting menstrual flow had caused the facial hair to leave, she insisted on receiving similar treatment and is now being given amniotin every other day during the two weeks prior to each anticipated menstrual period.

The only incentive for the menstrual function commencing in this case, so far as I know, was amputation of the offending penis, and its prompt beginning is something difficult to account for. Whether the normal cycle, with usual periodicity, will be established belongs to the future. It is quite likely that there will be considerable irregularity of appearance, even though the final goal of approximate normality is reached. She is quite a different individual and shows distinct relief from her former repressed embarrassment arising out of psychophysical imbalance.

The patient has recently secured a contract as a teacher in the schools and appears quite contented.

## SUMMARY

1. Three cases of hermaphroditism occurred in the same family stem. Two other children, both dead, are supposed to have been endowed with the same or similar sex anomalies; their cases are not reported for lack of authentication by personal examination.

2. All these patients were of a single generation; no others, so far as ascertainable, were in the least degree hermaphroditic in the preceding or succeeding generations. Thirty-six offspring of the brothers and sisters of these hermaphrodites have been checked over and found normal in all respects.

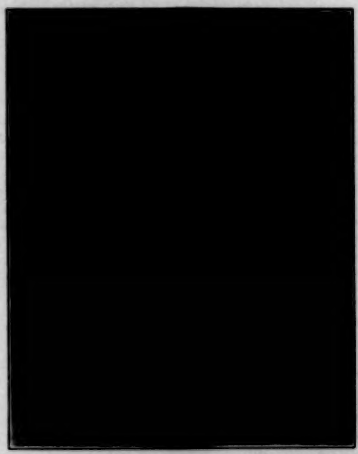

Fig. 10 (case 3).—Appearance of vulva five weeks after operation.

3. In all the patients of the series, abdominal exploration was done for determination of the dominant sex, and this was followed by such plastic operations as appeared advisable in the interest of conformatory relief.

4. In some way, natural forces within an individual seem to be able to correct an embryonic error, once the offense of this error is removed.

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# EMBOLISM

## FOLLOWING INSTRUMENTATION AND INJECTION OF OIL INTO THE URINARY BLADDER

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AND
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SAN FRANCISCO

It is more than a hundred years since Magendie (1827) found that fluid fat circulating in the blood stream might obstruct a vessel. Perhaps because of the apparent simplicity of this mechanical obstruction he did little experimental work with circulating fat and no large recognition was given to his discovery. In 1865 Virchow injected oil into the neck vein of a dog and produced a fatal fat embolism, which was accompanied by acute pulmonary edema. A few years later Riedel [1] produced extensive fat embolism in the lungs by oil, which had been injected into an artery and which had in the meantime passed through other organs. Scriba [2] demonstrated that droplets of fat could pass through other organs and the lungs as well, without difficulty in certain instances; previously a patent foramen ovale had been considered essential to the passage of embolic fat from the lesser to the greater circulation. Scriba also noted, in continuing his experiment, that a large amount of oil could be injected into the circulation without fatal effect, and he computed that as high as one third of the body fat mass could be injected at one sitting without fatal results. Ribbert [3] estimated in 1894 that the fatal human oil dosage was between 30 and 40 cc. when injected intravenously, but Landois,[4] basing his computation on Scriba's ratio, put the figure at 210 cc. In an actual proof, Fibiger [5] reported the death of a young adult male after the accidental injection of oil into the vein. Fuchsig [6] reported the fatal intravenous oil dosage at 2 Gm. per kilogram, and Wegelin,[7] after reference to the contention of Merckel that intravenous oil injection in dogs testified to no conclusion as to human embolism, reported the work of Kojo on the relative effects of various oils. In quoting Kojo, he stated that in rabbits an injection of from 0.6 to 0.7 cc. of olive oil per kilogram was well borne, whereas from 1 to 1.5 cc. per kilogram caused death. In any event, and in spite of the apparent disagreement as to the amount of oil necessary to cause death, it is apparent that oil in somewhat varying amounts injected into the venous circulation will cause death by fat embolism. Lehman and Moore,[8] attempting to settle this controversy, injected varying doses of cottonseed oil into twelve dogs. Three dogs had received 2 cc. of oil per kilogram and died spontaneously within a few hours. Two other animals receiving 1.7 and 1.66 cc. per kilogram, respectively, died within a few days. Six dogs, which were injected with 1.5 cc. per kilogram or less, survived. Killed later for autopsy, they showed no typical pathologic changes. Lehman and Moore draw the amazing comparison that, if the human being can be compared with the dog, the average sized human being can tolerate an injection of 120 cc. On the other hand, fat embolism may occur with but little or no introduction of fat into the venous system. Carrara [9] reported fat embolism present at necropsy in 22 per cent of deaths from cardiovascular-renal disease and in 44 per cent of burns. Catsaras [10] found fat emboli in the lungs in eighteen of sixty-seven cases of postinfluenzal pneumonia. Fat embolism has been reported in acidosis,[11] potassium chlorate poisoning,[12] carbon monoxide poisoning,[9] profound sepsis,[13] chronic alcoholism,[14] chloroform narcosis,[11] diabetic retinitis,[14] phlegmonous gastritis,[13] acute pancreatitis,[9] chronic tuberculosis,[9] hepatitis, suppression of the menses, splenitis, carcinomatosis and sarcomatosis (the last five from the literature by Warthin [15]), while Lehman and Moore have produced fat embolism without trauma in dogs by ether administration, either by vein or by inhalation.

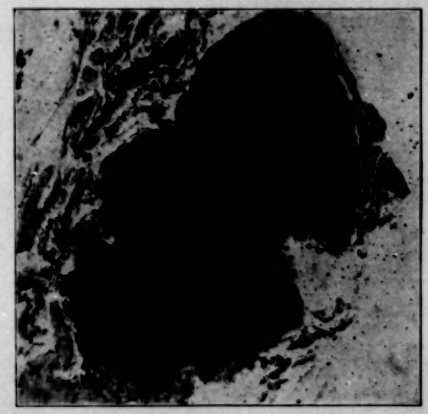

Fig. 1.—Basilar artery with thrombosis.

It becomes apparent then that, while large amounts of fat injected intravenously may cause fat embolism, the same condition may ensue following the intravenous injection of small amounts of fat or from physiopathologic changes in the plasma, entirely independent of any outside fat source.

The injection of oil into the urethra has been found to facilitate the passage of sounds or catheters into the bladder, especially in patients with urethral stricture. Thompson [16] pioneered with such a method nearly seventy years ago, while Cabot, Crane and many other urologists have recently adopted this procedure. Thompson, after many years of observation, remarked

From the Departments of Pathology and Urology of the University of California Medical School, the San Francisco City and County Hospital and the San Francisco Coroner's Office.

1. Riedel: Deutsche Ztschr. f. Chir. 13:118, 1879.
2. Scriba: Deutsche Ztschr. f. Chir. 8:571, 1877.
3. Ribbert: Cor.-Bl. f. Schweiz. Aerzte 24:457, 1894; Deutsche med. Wchnschr. 26:419, 1900.
4. Landois: Ergebn. d. Chir. u. Orthop. 16:99, 1923.
5. Fibiger, cited by Grondahl: Deutsche Ztschr. f. Chir. 111:56, 1911.
6. Fuchsig, cited by Warthin: Internat. Clin. 4:171, 1913.
7. Wegelin, C.: Schweiz. med. Wchnschr. 53:133 (Feb. 8) 1923.
8. Lehman, E. P., and Moore, R. M.: Fat Embolism, Arch. Surg. 14:621 (March) 1927.
9. Carrara: Friedreich's Bl. f. gerichtl. Med. 49, 1898, cited by Warthin: Internat. Clin. 4:171, 1913.
10. Catsaras, J.: Presse méd. 28:618 (Sept. 4) 1920.
11. Winkler: Ztschr. f. orthop. Chir. 45:616, 1924.
12. Winogradow: Virchows Arch. f. path. Anat. 190:92, 1907.
13. Grondahl: Deutsche Ztschr. f. Chir. 111:56, 1911.
14. Bantin, C. F.: Diabetic Lipemia Retinalis and Fat Embolism, J. A. M. A. 86:546 (Feb. 20) 1926.
15. Warthin: Internat. Clin. 4:171, 1913.
16. Thompson, Henry: Diseases of the Urinary Organs, London, J. & A. Churchhill, 1888.

on the ease with which bacteria, various drugs, air and semisolids, such as oil, might pass from the urethra into the circulation, and he indicated that this danger was greatly accentuated after the urethral mucosa had been traumatized. Schönfeld and Müller,[17] Scott [18] and others, both clinically and experimentally, have substantiated this opinion, while Jeck [19] and Mathé [20] are among those who have reported fatal cases of air embolism following pneumatic dilation of the bladder. The passage of bacteria into the blood stream by way of the urethral mucosa is commonly manifest by the so-called urethral chill, and Patterson [21] has recently reported two fatal cases of oil embolism following urethral instrumentation facilitated by the use of oil.

## REPORT OF CASE

The following is the report of still another case of fatal oil embolism, which was treated at the San Francisco City and County Hospital, with autopsy at the San Francisco coroner's office:

*History.*—A man, aged 34, who entered the hospital, had had previous gonorrheal infection followed by stricture of the urethra and for some time the urinary stream had been slow and small. One week previous to entry there had been a complete retention relieved by catheterization, which was difficult. On entry he had not voided at all for at least eight hours. The bladder could be felt extending up to the umbilicus. Attempts were made by one of the house staff to pass soft rubber catheters of various sizes without success. A metal stilet was then used to guide the catheter, also without success. There was some bleeding from the urethra. About 50 cc. of sterile cottonseed oil was then gently injected into the urethra, some of which passed on into the bladder. The patient then voided several hundred cubic centimeters of urine and complained of

Fig. 2.—Cerebral vessels showing thrombosis and peripheral oil droplets.

feeling dizzy. The bladder was still palpable but the patient was put to bed as he felt relieved. One hour later he became pale and then cyanotic, his respirations became deep and stertorous, and he could not be roused. There were no chills or convulsions. He died four hours later.

17. Schönfeld, W., and Müller, W. G.: München. med. Wchnschr. 72: 293 (Feb. 20) 1925; abstr. J. A. M. A. 84: 1312 (April 25) 1925.
18. Scott, W. W.: J. Urol. 22: 527 (May) 1929.
19. Jeck, H. S.: Tr. Am. A. Genito-Urin. Surgeons 25: 209, 1932.
20. Mathé, C. P.: Surg., Gynec. & Obst. 48: 429-434 (March) 1929.
21. Patterson, E. A.: The Danger of Dilating Urethral Strictures with Oil, J. A. M. A. 97: 1147 (Oct. 19) 1931.

*Pathologic Report.*—A survey of the body grossly showed a young white man of normal external appearance, the body without distinguishing marks or deformities. The usual incision was made. The abdominal tissues were in their normal relationships and were normal in every respect on gross examination. When the thoracic cage was lifted off, the heart was in diastole and filled with clotted blood but was normal in size, shape and position and the pericardial cavity was empty.

Fig. 3.—Oil droplets in pulmonary capillaries.

The lungs were aerated and showed no areas of infarction, infection, fibrosis or other pathologic change. Examination of the bladder showed a moderate injection of the mucosa and a few tears in the mucosa of the posterior urethra. These were not large, however, and there was no active bleeding from them. The stricture that was the cause of the patient's entry into the hospital had been broken and dilated by instrumentation. There were about 400 cc. of clear yellow urine and 20 cc. of oil in the bladder. When the cranial cap was lifted off, a rather wet brain was seen, which weighed 1,550 Gm. The convolutions and sulci were normal and the leptomeninges showed no pathologic changes. In the basilar artery there was a blood clot occluding the lumen, which apparently had formed there before death (fig. 1). It was felt that this clot might have been associated with the sudden death of the patient and it was somewhat discolored, being browner and of a darker color than a normal blood clot. No other pathologic changes were seen. Sections were taken of all the organs.

Microscopic sections of the brain showed no cortical changes and no areas of degeneration, infection or infarction. Sections of the vessels of the base, however, showed a general occlusion with premortem clots, and about the borders of the clots occluding the lumens were small vacuoles which stained a deep pink with sudan III (fig. 2). They also reduced osmium peroxide, giving a deep black with this stain. Many of the vessels throughout the cortex were occluded by such a mechanism, and, when small sections of the brain were immersed in sudan III, small punctate red dots developed diffusely throughout the cortical structure.

The heart muscle was normal, the myofibrils being well preserved. The endocardium and pericardium were normal and the coronary vessels were free from clots and foreign material. Sections of the lung showed a normal aeration with the alveolar spaces distended. In some places, however, the bronchioles were filled with pus, and in the alveolar spaces adjacent to these there was a purulent exudate filling them as well. Throughout the capillaries in the alveolar walls more vacuoles could be seen and these gave a vivid reaction when stained for fat (fig. 3). The liver showed a normal structure with well preserved cells, normal portal arrangements, and sinusoids

free of oil or abnormal content. The spleen had a normal capsule, trabeculations and pulp. The sinusoids were somewhat distended by erythrocytes, but there was no increase in fibrosis in the splenic structure. No oil or other foreign material could be found. The pancreas showed normal acinous cords, patent ducts, lined with intact epithelium, a normal vascular system and normal islets. The adrenals showed the normal cortical zones with ample lipoid in the fascicular layer and a normal medullary region on either side. There was no oil in the adrenal circulation. In the kidneys, however, the glomerular tufts were distended and engorged with blood, and throughout droplets giving a positive stain for fat were found in the capillary channels of the glomerular tufts (figs. 4 and 5). They were not seen in the renal circulation elsewhere, however, and the glomerular capsules, renal tubules and pelvic membranes were essentially normal. The ureters were normal. There was a moderate injection of the mucosa of the bladder, but no infection was evident and there was no exudate on the mucosa or beneath it. Sections taken down in the area of traumatization showed destruction of the continuity of the mucosa with a few leukocytes scattered about and some increase in fibrous tissue directly beneath the mucosa. No oil, however, was found in the vascular channels here. Sections of the prostate showed a normal gland and the testicles were in active spermatogenesis and demonstrated the usual interstitial cells. Sections of the gastro-intestinal tract were normal throughout.

As bodies staining with sudan III and osmic acid were found occluding capillaries in the kidneys, lungs and brain, a diagnosis of oil embolism with death was made and it was presumed that the oil so entering the circulation was from the posterior urethra.

## COMMENT

In spite of the fact that here is a direct chain of circumstance proceeding from the instrumentation and

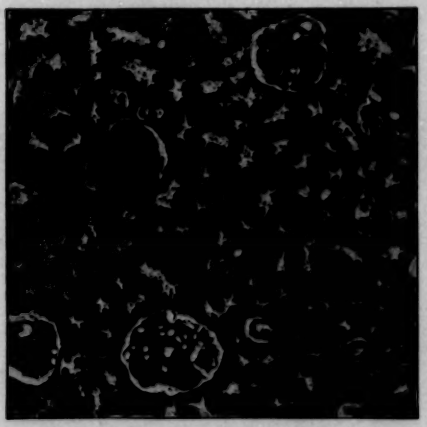

Fig. 4.—Oil droplets in glomerular capillaries.

oil injection through rather suggestive symptoms to the death of an individual, we are still at a loss to explain why a small amount of oil entering the blood stream in this way should cause death when it is known that larger amounts can be injected intravenously without causing definite symptoms. As Lehman and Moore [9] suggest, the entrance of fat into the blood stream cannot be definitely regarded as disease producing in a direct way, and they indicate that this fat entering in abnormal circumstances may not be the fat which causes the embolism. They suggest rather that such fat introduced artificially must in some way associate pathologically with the free neutral fat in the blood stream, which is there physiologically. In this case there is no indication that the fat metabolism was upset or that the emboli seen in the various organs described are

Fig. 5.—Oil droplets in a glomerular tuft.

composed of other fat than that which was accidentally injected, although, of course, it was not possible to analyze these droplets for determination of their specific formulas.

## CONCLUSIONS

1. Widely varying amounts of oil or fat may cause death by fat embolism.

2. The posterior urethra is an active absorptive bed and can be the portal of entry of sufficient fat or oil to cause fatal embolism.

3. The danger of oil absorption with embolism is greatly increased by previous urethral instrumentation.

4. Nothing should be injected into the traumatized posterior urethra that cannot be safely injected intravenously.

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**The Aqueduct of Sylvius.**—The aqueduct of Sylvius is a narrow midline canal connecting the third and fourth ventricles. It is about 1.5 Gm. in length and varies in width from 1 to 2 mm. The diameter is not quite uniform, being slightly narrower at the rostral end due to the ventral projection of the posterior commissure, and wider in the midportion (ventriculus mesencephali of Retzius). In its rostral half the aqueduct courses almost horizontally but at about its midportion it curves sharply, becoming almost vertical. The aqueduct has an arched roof consisting of the quadrigeminal plate and posterior comnissure, and a floor formed by the tegmentum of the midbrain and the subependymal gray matter peripheral to which the cerebral peduncles lie.—Davidoff, L. M., and Dyke, C. G.: The Demonstration of Normal Cerebral Structures by Means on Encephalography: V. The Ventricles, Interventricular Foramina, and Aqueduct of Sylvius, *Bull. Neurol. Inst. New York* 4:91 (March) 1935.

# SWEAT REDUCING SUBSTANCES IN YEAST DERMATOSES

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For a long time it has been suspected that yeast infections of the skin are associated with some error in carbohydrate metabolism. The condition is most prevalent among Jews, a people who are prone to difficulties in sugar metabolism. Moreover, yeasts require a ready supply of sugar to thrive. In addition, yeast infections are fairly common in diabetic patients and in the genital tract of diabetic women. In spite of this evidence, no carbohydrate metabolic error has been definitely linked with the majority of cases of moniliasis. Examination of the blood of most of the affected subjects has not shown it to have any deviations from the normal. Since it would indeed be surprising if any carbohydrate metabolic change should be present without showing itself in the blood, and none has been regularly found there, investigators have been discouraged from looking elsewhere.

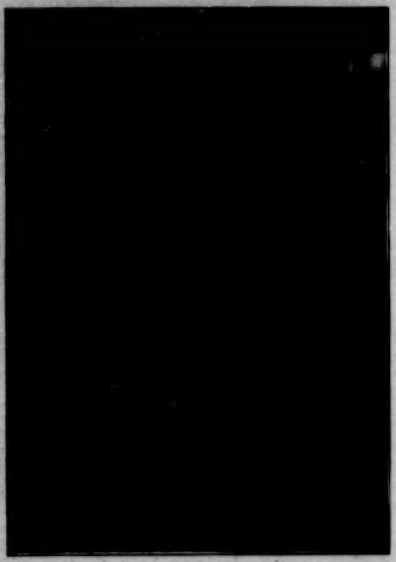

Fig. 1.—Erosio interdigitalis saccharomycosis and yeast paronychia in the same individual.

There are several reasons, however, for suspecting that the sweat may be the seat of a carbohydrate metabolic error. First, yeast infections are surface manifestations and generally remain such. Second, they are mostly confined to folds in which sweat stagnates. Third, it is possible to have a concentration of a sweat ingredient (reducing substance) out of all proportion to that found in the blood. Thus, I have recently found potassium relatively more concentrated in the sweat than in the blood.

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I have been making a general survey of the constituent properties of sweat and in this I have included observations on its reducing powers, which I shall hereafter refer to in equivalents of dextrose. Twelve persons without any yeast infections were selected at random and sweated in a heat chamber. They served as controls to patients with yeast infections. Six persons with yeast paronychia, four adults with perlèche, eight with erosio interdigitalis saccharomycetica and three with yeast infections under the breasts, in the groins and around the umbilicus constituted the pathologic group. The sweat was collected by placing the patient in a rubber sack, closely drawn up around him as far as the neck, and sweated in a heat chamber that uses electric light bulbs as the source of heat. The temperature varied from 110 to 130 F. He remained in the heat chamber for thirty minutes. Blood was withdrawn for sugar determination just before and after sweating.

In all cases, pathologic as well as normal, the blood sugar rose during sweating. This rise ranged from 5 to 30 mg. per hundred cubic centimeters. The extreme rises occurred in one of the two diabetic patients in the series. In general, those in the pathologic group tended to have the greater rise in blood sugar levels during the sweating as compared to the control group. Sweat reducing substance of the control group varied between equivalents of 20 and 40 mg. of dextrose per hundred cubic centimeters. This agrees fairly well with the values found by Silvers, Forster and Talbert,[1] who found from 28 to 40 mg. per hundred cubic centimeters. Usher and Rabinowitch [2] obtained somewhat lower concentrations, but their figures cannot be directly compared with mine since their procedure was somewhat different. Whereas I gave no fluids, they gave 250 cc. of water one-half hour before and a like amount one-half hour after the sweating experiment was started, which lasted an hour. Moreover, they used pilocarpine, whereas I did not.

The sweat from the pathologic group contained from 55 to 90 mg. per hundred cubic centimeters. Even the lowest values in the group were distinctly higher than the highest ones for the controls. All the values for these normal and pathologic groups were obtained while the subjects were fasting. The Folin-Wu method for sugar estimation was used throughout.

The normal group secreted from 25 to 300 cc. in a half hour by my method, whereas the pathologic group secreted from 5 to 60 cc. under the same conditions. It might appear that the reason for the higher concentration of reducing substance in the sweat of the pathologic group is that it sweated so much less than the controls. It is plausible that the larger amount of fluid secreted would dilute the reducing substance present. This, however, is not true. I found that by collecting sweat in a series of batches from a person during one sitting that successive samples did not vary much in their reducing substance concentrations. In fact, in some persons I found an actual increase to take place, at least for the time of the experiment, one-half hour. Thus, one man secreted 10 cc. of sweat in the first ten minutes and the reducing substance of this was 26 mg. per hundred cubic centimeters. In the next twenty minutes he secreted 156 cc., the reducing substance con-

1. Silvers, S.; Forster, W., and Talbert, G. A.: Simultaneous Study of the Constituents of the Sweat, Urine and Blood: VI: Sugar, Am. J. Physiol. 84: 577 (April) 1928.
2. Usher, Harvey, and Rabinowitch, I. M.: Excretion of Sugar in Sweat: Its Relationship to Eczema, Arch. Dermat. & Syph. 16: 706 (Dec.) 1927.

centration of which was 32 mg. In general, however, successive samples did not decrease much in reducing substance concentration as more sweat was secreted.

The question now comes up as to whether the reducing substance of the sweat is actually sugar. Usher and Rabinowitch [2] by fermentation experiments came to the conclusion that all of the reducing substance was fermentable and consequently probably sugar. Using their technic, I can corroborate their results. Moreover, lactic acid, which is an intermediary metabolite of sugar, is found in great abundance in sweat.

In phenylhydrazine tests [3] on sweat I have been unsuccessful in demonstrating osazones. None of the normal control subjects yielded osazones. The Molisch test on these specimens was negative. From the standpoint of the phenylhydrazine test, I consider it as yet indeterminate whether all the reducing substance, or part of it, is actually sugar.

If these reducing substances in sweat are indeed sugar, does that help to explain the yeast infections in these patients? A simple increase in sweat content will allow a heavier growth of yeast, and this could determine the successful invasion of the skin. It has been definitely shown that the size of an inoculum of microorganisms is a decisive factor for success of a transplant of a culture. An increase in the number of yeasts might not, however, be the only factor. The increased sugar could conceivably change the epithelium physically. I therefore immersed horn cells in watery mediums that contained graduated quantities of sugar but could detect no difference in the softening or clearing powers of the different concentrations of sugar.

In most of the persons in the pathologic group there was decreased sweating, so that the idea of maceration from excessive sweat with them may be dismissed. Nor for any other reason by itself does the amount of sweat explain the infections. Those of my tested subjects who sweated little and had normal concentrations of reducing substances did not have yeast infections.

The difference between the normal and pathologic groups in the concentration of their sweat is not adequately reflected in the figures for freshly secreted sweat. The difference in concentration between the two groups becomes increasingly exaggerated as the sweat is evaporated. Since it is the evaporated residue that is present for yeast consumption on the skin, it is the exaggerated difference that really comes to be the significant one. It becomes evident then that, the greater the concentration of the reducing substance in freshly secreted sweat, the more this piles up in the evaporated end product. A small difference in concentration to begin with becomes a much larger one when the sweat is partially evaporated and presented for consumption to the yeast. Thus to take two examples, one from a normal control, the other from a patient with moniliasis: Ten cubic centimeters of sweat collected from each was evaporated to 3 cc. in a large flat plate at a temperature that varied between 36 and 40 C. The dishes were placed on hot plates with enough layers of asbestos between to regulate the temperature within these limits. The reducing substance in the normal sweat was equivalent to 20 mg. of dextrose per hundred cubic centimeters and in that of the pathologic 73 mg. The difference between the two was 53 mg. After partial evaporation, the normal sample contained reducing substances equivalent to 42.1 mg. of dextrose, while the pathologic one contained 128 mg. The difference after evaporation was about 86 mg., or an increased difference of 33 mg. as compared to that before evaporation.

Usher and Rabinowitch [2] reduce the sweat sugar excretions to values for the amount of sugar per hour or unit of time. This gives useful and instructive data. It is doubtful, however, as to whether such figures carry any final significance for present considerations. During a given period most of the patients with yeast infections excreted less total reducing substance than did the normals. Their sweat, however, was much more concentrated in respect to reducing substance. The increase per unit of volume did not make up for the meager amounts of total fluid they secreted. Since it was they who had the yeast infections, it would seem that not the total amount of reducing substance excreted but rather its concentration in the sweat was decisive for yeast infection.

Fig. 2.—Eroio interdigitalis saccharomycosis and perlèche in the same individual. This woman also had a submammary dermatitis.

That a reducing substance residue does definitely remain on the surface of the skin all the time seems to be shown by the fact that a sample collected from a person after bathing contains less reducing substance than one collected without previous bathing. In a man whose sweat contained from 40 to 44 mg. per hundred cubic centimeters on three occasions in eight days, a shower bath before the collection of the sweat reduced the concentration to 25 mg. per hundred cubic centimeters. Thus apparently some of the reducing substance clinging to the surface of the skin, which would have given his sweat a concentration of from 40 to 44 mg. per hundred cubic centimeters, was washed off in bathing. This result is representative of three other persons examined. Since the reducing substance

3. With the technical assistance of Dr. Morris A. Kaplan.

concentrations that I reported for the normal and pathologic groups were obtained by sweating without previous bathing, it would mean that these figures would have to be scaled down 40 per cent in order to obtain the true concentration of reducing substance of freshly secreted sweat.

Could volatile substances account for any of the reducing substances found in sweat? To answer this, 100 cc. of sweat was distilled slowly in such a way that the distillate was collected under a small amount of water. This water was tested for reducing substances and was found to contain none. The original 100 cc. contained 47 mg., and when the 100 cc. was distilled to a residue of 22.5 cc. this contained 109 mg. per hundred cubic centimeters. This experiment seems to show that none of the reducing power of sweat can be accounted for by volatile substances.

If the high reducing substance content of the sweat is the fundamental cause of yeast infections, it would appear that one rational method of combating them is to reduce the sugar concentration. In attempts at this I made observations on the effect of the sweat reducing substance concentration from the administration of several drugs and biologic substances. These included insulin, pilocarpine, atropine, solution of pituitary, amniotin, epinephrine, and dextrose itself. The results of these procedures showed that, in general, quantitative deviation in blood sugar content will reflect itself in the same direction in the sweat reducing substance but that the changes in the latter were much smaller. Thus with 10 units of insulin, given after the first sample of blood was taken, one diabetic patient had her blood sugar reduced from 170 to 158 mg. per hundred cubic centimeters while sweating, and the sweat contained 57 mg. equivalents. Without insulin, the blood went from 167 to 182 mg. during sweating, while the sweat was 65 mg. Epinephrine produced increases in the sweat reducing substance but also with more substantial ones in the blood. It induced greater changes in those with much sweat reducing substance. Between these extremes there were values found from the use of pilocarpine, solution of pituitary, atropine and amniotin. The administration of sugar by mouth has a definite effect on the content of sweat reducing substance. The group with yeast infections showed a somewhat greater change in the content of sweat reducing substance after the ingestion of 50 Gm. of dextrose as compared with the control group. The general method in these procedures for influencing the blood sugar and sweat reducing substance was to take blood samples, administer the drug, biologic product or sugar, wait fifteen minutes and then sweat the patient. A blood sample was then again withdrawn directly after the patient sweated for half an hour.

Another mechanism must undoubtedly be at work to abet the yeast infections under wet dressings and in those in a continuous water bath. Here it is evident that any sugar on the skin surface would be quickly dissolved away and its concentration decreased. I[4] have already shown that moist skin areas are not as efficient as drier ones in ridding themselves of micro-organisms. Every one is familiar with the difficulty of growing a culture on otherwise suitable mediums that have dried out. The epidermis that has become soggy by the continuous presence of moisture allows the organisms to gain a foothold by not being able to inhibit them from the start. They are further encouraged by their ease in penetrating a softened cell. The fact that the sugar concentration is reduced will not in itself prevent yeast growth. In the case of the water bath, the decrease in concentration of sugar is more than counteracted by the ease with which the yeast gains a foothold on and invades the wet epidermis.

In the case of the contact areas of the skin—the submammary folds, the interdigital spaces and the corners of the mouth—not only is moisture conducive toward gaining a foothold in the epidermis but larger amounts of reducing substance are at their disposal. I have previously found[5] that the nail fold, just as the skin contact areas, is also deficient in inactivating micro-organisms. It presents the same conditions for the growth of yeast as do the other areas that are more obviously moist.

In practically all forms of yeast infection of contact areas, it is Monilia albicans that is found. Benham and Hopkins[6] could not isolate this organism from normal skins and concluded that when one finds this organism in a lesion of the skin one is dealing with one of a group of dermatoses that may be referred to as moniliasis. The numbers of this group seem to be closely related, if not in fact identical. In my series of patients a goodly number had multiple manifestations at the same time.

In three of them there was perlèche, paronychia, and erosio interdigitalis simultaneously. The site affected varies the morphology of the lesion, and this is known clinically under a distinctive name. It is simpler to look on such occurrences as clinical variants of the same kind of yeast or monilial infection. In that way one is better prepared for the same background for all, a similar environment for a single causal organism. This environment would seem from my experiments to be a ready supply of sugar furnished by unevaporated sweat and epithelial cells that are laden with moisture.

Since the organisms that cause eczematoid ringworm thrive best with a ready supply of sugar, and they too confine their original activities in interdigital spaces, it is to be presumed that a factor of reducing substance concentration in sweat might determine infection with them. This possibility I have recently begun to investigate.

## SUMMARY

Persons with yeast dermatoses have higher concentrations of reducing substances in their sweat as compared to normals. This reducing agent seems to be sugar, as shown by fermentation tests and observations on sweat lactic acid, an intermediary metabolite of sugar. Preliminary phenylhydrazine tests, however, have not so far positively confirmed the presence of sugar. None of the reducing substance in sweat can be accounted for by volatile substances. The reducing substance in sweat remains relatively constant if there is no evaporation. Contact areas or skin folds retard evaporation of sweat and thus make available more reducing substance and moisture for micro-organisms. It is these areas which are deficient, too, in their powers for sterilizing themselves. Organisms are then able to get a foothold, and if they are yeasts they are particu-

4. Cornbleet, Theodore: Self-Sterilizing Powers of the Skin: II. The Body Folds, Arch. Dermat. & Syph. 28:1050 (June) 1933.

5. Cornbleet, Theodore, and Montgomery, R. E.: Self-Sterilizing Powers of the Skin, Arch. Dermat. & Syph. 23:908 (May) 1931.

6. Benham, Rhoda W., and Hopkins, Ann. M.: Yeastlike Fungi Found on Skin and in Intestines of Normal Subjects, Arch. Dermat. & Syph. 28:532 (Oct.) 1933.

larly able to thrive in the available stagnating sweat medium rich in reducing substance supplies. It is common to find one person with several types of yeast infection. It is convenient, and I think correct, to look on these various types of clinical entities as being merely morphologic differences produced by the accident of site affected. They are all due to Monilia albicans on a background of high concentration of sweat reducing substance. Eczematoid ringworm probably is produced by the same background but by different organisms. Attempts to lower the concentration of sweat reducing substance by influencing the blood sugar level were not encouraging. Sugar ingestion does make some difference, and this is greater in persons with high concentration of sweat reducing substance. It seems an advisable measure, although one of limited value, to reduce the carbohydrate intake of persons with moniliasis.

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## SUTURE OF STAB WOUND OF THE HEART

REPORT OF CASE

GEORGE BENET, M.D.
AND
CHARLES GORDON SPIVEY, M.D.
COLUMBIA, S. C.

Until the end of the nineteenth century, thoracic surgery lagged far behind the advances made in abdominal surgery, and any surgical procedure on the heart itself was considered an impossibilty. As late as 1883 the great Billroth announced that "the surgeon who should attempt to suture a wound of the heart would lose the respect of his colleagues." It remained for the intrepid Cappelan to venture into this unknown field. The first recorded attempt to suture a stab wound of the heart was made by Cappelan in 1895. His patient died after two days. Farina made the second attempt in 1896, with fatal results. The first successful case was that of Rehn in 1897, and ten years later he was able to collect 124 cases in which suture had been performed, with a 40 per cent recovery. In 1920 the literature contained 305 cases, with 50.4 per cent recovery (Tuffier), and Smith assembled fifty-eight cases between 1912 and 1923, with 66⅔ per cent recovery. In the light of present-day knowledge, this increasing percentage of recoveries will doubtless continue. The brilliant work of Cutler and Beck [1] during the past decade has gone far to place cardiac surgery on a firm footing. Cutler's successful section of a stenosed mitral valve marks an epoch in this field of endeavor and is one of the great triumphs of modern surgery.

Certain factors are essential to success in cardiac suture. Among the more important may be included the element of elapsed time after the wound is received, the size and character of the wound in the heart muscle, the incidence of other extracardiac injuries, the age of the patient, and the general cardiac condition. One great danger to be avoided by the surgeon is the natural tendency to haste. A careful dissection in the early stages of the operation, with particular reference to avoiding perforation of the pleura, will obviate complications that are severe and may well prove fatal. The diagnosis is not always simple and depends on a stab wound over the cardiac area, with little or no external bleeding, feeble or absent radial pulse, low blood pressure, and the important physical signs associated with "heart tamponade"; i. e., engorged vessels of the neck and muffled heart sounds. With the increase of pressure within the pericardium there may be respiratory embarrassment. The general picture is that of extensive hemorrhage, which, coupled with the physical changes outlined, justifies the diagnosis. The differential diagnosis should include injury to the lung, intercostal artery, mammary artery, pericardial wall, and penetrating, as opposed to perforating, wounds of the heart. However, a severed coronary artery may give rise to heart tamponade, in the absence of a perforation of the endocardium.

The choice of surgical approach to the heart lies between the midsternal incision employed by Cutler [2] in his operation for valvular disease, and the parasternal. The latter is simpler and more rapidly performed. Median sternotomy is a formidable undertaking and probably not well tolerated by an exsanguinated patient. The parasternal incision gives an excellent exposure of the left ventricle, and by transverse section of the sternum, with forward dislocation, the right ventricle is brought into the field of operation. With the pericardium opened and the tamponade relieved, the heart rapidly regains its forceful contractions and the surgeon finds himself operating in a mass of bloody foam, which is not conducive to equanimity. In handling the heart, strangulation of the base must be guarded against, a feat difficult to accomplish in the excitement of the moment.

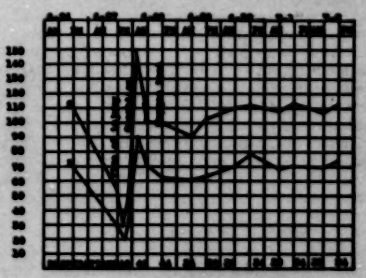


Fig. 1.—Blood pressure and respiration rate.

The heart can be handled most gently by means of one or two deep sutures placed in the apical region of the left ventricle. By traction upon these threads, one can elevate the heart from its bed, rotate it, and expose all portions to view. Success seems to depend upon the avoidance of obstruction to the flow of blood in the heart. This method of using traction sutures instead of grasping the organ forcibly in the hand seems to result in almost no interference with either the flow of blood in the coronary vessels or in the heart itself.[1a]

1. (a) Cutler, E. C., and Beck, C. S.: Surgery of the Heart and Pericardium, Nelson's Surgery, vol. 4, pp. 233-306. (b) Cutler, E. C., and Beck, C. S.: The Technique of Cardiorraphy, Surg., Gynec. & Obst. 48:74-79 (July) 1927; (c) The Present Status of the Surgical Procedures in Chronic Valvular Disease of the Heart, Arch. Surg. 2:403-416 (Jan., pt. 1) 1929.

2. Cutler, E. C.: The Present Status of Cardiac Surgery, Surg., Gynec. & Obst. 54:274-279 (Feb.) 1932. Cutler, E. C.: Cardiac Surgery, J. Maine M. A. 23:156-161 (Aug.) 1932.

With the wound in the cardiac wall localized, the hemorrhage can be controlled by a finger tip, and suture performed. A double suture has been advocated as a means of plugging the needle hole and avoiding troublesome oozing. It is well to remember that, in closing the pericardium, the lower extremity of the wound should be left open for a distance of at least 3 cm. to permit drainage. It is generally agreed that a drain should not be placed within the pericardial sac. In this connection, the experimental work of Beck [3] is illuminating. He found that adhesions between the heart and the pericardium were readily produced by merely rubbing the pericardial surface with surgical gauze. Should the pleura be opened by accident, and collapse of the lung ensue, aspiration of air from the thoracic cavity should be carried out immediately after closing the chest wall. It has been suggested that gas-oxygen-ether be administered as an anesthetic in these cases, with a pressure only slightly greater than atmospheric, to guard against collapse of the lung in the event that the pleura is opened.

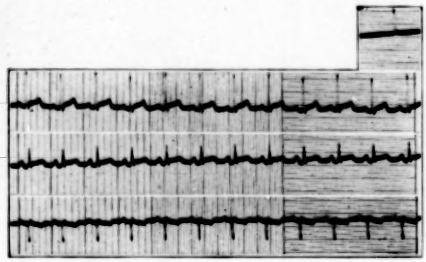


Fig. 2.—Electrocardiographic record made twelve hours following operation showing a rate of 111, regular, and PR, 0.16 second. No abnormality was noted other than tachycardia and evidence of left axis deviation.

The postoperative care of these cases is all important, and especially so if a pneumothorax exists. Should the patient survive forty-eight hours in the presence of a pneumothorax, it rapidly resolves itself into a pulmonary rather than a cardiac condition. Pleural effusion is almost inevitable and requires repeated aspiration and, eventually, rib resection if suppuration develops. In this pulmonary complication the use of an oxygen tent will prove of great value in reducing the high respiratory rate and preventing exhaustion. A serious complication following cardiac suture is cerebral delirium, which may take a violent form. This is doubtless due to the prolonged cerebral anemia induced by extensive hemorrhage and low blood pressure. This can be combated only by large doses of morphine, continued for days. This drug is an essential aid in the after-care of cardiac suture when there has been extensive loss of blood. Probably the most serious complication of this condition is suppurative pericarditis, and its incidence is not to be wondered at when one considers the passage of a dirty knife through the pericardium. However, this is not the only possible infective agent. Several cases have been reported in the literature in which this complication existed, when the operation was hastily performed, with improper sterilization of instruments. Certainly, this is another argument against haste, and it should be needless to remark that the most rigid aseptic technic is imperative.

3. Beck, C. S.: The Surgical Treatment of Pericardial Scar, J. A. A. 97: 824-830 (Sept. 19) 1931. Beck, C. S., and Isaac, L.: Pneumocardiac Tamponade, J. Thoracic Surg. 1: 124 (Dec.) 1931. Beck, C. S.: Wounds of the Heart, Arch. Surg. 13: 205 (Aug.) 1926.

## REPORT OF CASE

*History.*—C. T., a Negro youth, aged 16, an inmate of the South Carolina State Reformatory for Negro Boys, was stabbed by a fellow prisoner, June 27, 1934, at 8:30 p. m. The knife entered the anterior chest wall. He was immediately taken to the Columbia Hospital by Dr. C. G. Spivey, the reformatory physician.

He was conscious but in profound shock. There was no external bleeding from the chest wound. This wound, approximately 3 cm. in length, was in the right fourth intercostal space, at the sternal margin. The temperature was 96 F. The radial pulse was absent and the blood pressure was too low to record. The breath sounds in both lungs were clear and distinct, and no dulness was demonstrable in either base. The heart sounds were audible, but muffled and indistinct throughout the precordia; the rate was 90 to the minute. Red blood cells numbered 3,120,000; leukocytes, 10,000; hemoglobin was 55 per cent. The urine was normal. (From the reformatory records it was learned that his normal blood pressure was 110 systolic, 70 diastolic. The Wassermann reaction was negative.) He was given two one-fourth grain doses of morphine, half an hour apart, and treated for shock. An hour and a half following the injury the radial pulse was fairly palpable, and the skin seemed less cold. The blood pressure was 28 systolic, 20 diastolic. A diagnosis of stab wound of the heart was made, but operation was further delayed owing to the slight degree of improvement and the hope that he would further improve. At 11 o'clock, or two hours and a half after the wound was received, the general condition had definitely improved, with a fairly good pulse at the wrist, and a blood pressure of 48 systolic, 28 diastolic. It was decided that operation could be attempted. He was given no fluids.

*Operation.*—Under a light ether anesthesia with open mask, a left parasternal incision was made, exposing the fifth, sixth and seventh ribs. The cartilages of these ribs were cut close to the sternum and the bony portions of the ribs partially divided with a costotome, just beyond the cartilaginous attachments. In lifting this hinged rib flap, the pleura was accidentally torn beyond repair, resulting in an immediate massive collapse of the left lung. There was marked respiratory embarrassment, and for a few moments it was believed that this would terminate fatally. However, this unfortunate accident gave an excellent exposure of the pericardium, which was seen as a distended, round, bluish mass. The pericardial wall was opened, and several handfuls of blood clot were actually forced out of the sac by the contractions of the heart. With this relief of the tamponade, the contractures of the heart rapidly increased in force and filled the pericardium with a swirling mass of blood and foam, which added little to our composure. It was soon apparent that the wound was not in the left ventricle, as the rush of blood appeared from between the sternum and the violently beating heart. With a costotome, the sternum was divided transversely and dislocated forward. This gave a fairly good view of the right ventricle, and for the

Fig. 3.—Condition on the thirteenth day following operation, showing left pleural effusion and displacement of the heart.

first time a column of blood was seen, about the size of a match stick, squirting from the anterior wall of the right ventricle. This was controlled by a finger tip. There was apparently no injury to the coronary artery or to its interventricular branch. With some difficulty, owing to the rapid movements of the organ, a single strand of chromic catgut suture was introduced beneath the finger placed on the wound and tied. This sufficed to control the hemorrhage. Whether or not the needle passed into the endocardium, we are unable to say. At this time the heart was beating regularly and forcefully, although it had reacted

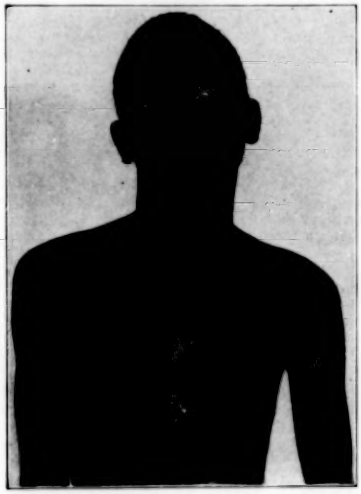


Fig. 4.—Patient six weeks following operation, showing original stab wound and beginning keloid in operative scar.

immediately to any strangulation of the base in handling. The respirations were rapid, but the general condition was surprisingly good. The incision in the pericardium was closed with a loose continuous catgut suture. The pericardial sac was not drained, and an opening was not left at the lower extremity of the wound. The wound in the chest wall was closed by replacing the hinged rib flap.

At the end of the operation the pulse was 120, forceful and regular. The blood pressure was 145 systolic, 90 diastolic. Respirations were 40. Five hundred cubic centimeters of 5 per cent dextrose was slowly introduced intravenously with a small needle. Within six hours the blood pressure dropped to 98/68 and within a week stabilized at 110/70. During the following week the convalescence was stormy, with violent cerebral delirium, which was controlled only by massive doses of morphine.

An oxygen tent was employed during this period, with a marked reduction in the respiratory rate. During the second week a pleural effusion developed on the affected side and was aspirated daily, until suppuration required a rib resection during the fourth week. From the time of the second operation the convalescence was uneventful. Before the patient's discharge from the hospital in the seventh week, he was examined by Dr. O. Benedict Mayer, who reported no cardiac embarrassment and no clinical signs suggesting the presence of pericardial adhesions. Normal mobility of the heart was noted on fluoroscopic examination.

Since discharge from the hospital, the boy has returned to his work in the reformatory infirmary.

Medical Building.

# BURNS, PRODUCED BY RADIO SHORT WAVE AND ULTRA-SHORT WAVE THERAPY

## AND THEIR PREVENTION

DAVID H. KLING, M.D.
WITH A CASE REPORT OF A SEVERE BURN BY
GEORGE O. BERG, M.D.
LOS ANGELES

Radio short wave and ultra-short wave apparatus is now extensively advertised and has begun to replace diathermy. At the high frequencies generated by these machines, ranging from ten to a hundred million oscillations per second (equal to wavelengths of from 3 to 30 meters), it is not necessary to apply the current directly to the body through metal electrodes as in diathermy. It is sufficient to place the part to be treated in the electrical field between insulated plates. Heat is generated chiefly by displacement currents within the tissues, which act as a dielectric.

This mode of application conveys the impression that the danger of burns is eliminated. The simplicity and safety of short wave therapy is played up in the sales campaign. Nothing is more erroneous. Burns have been observed clinically and they have been produced experimentally.

This report warns of the great danger ahead and, it is hoped, will bring about the prevention of serious damage.

## REPORT OF CASES

Abstracts of the histories of six cases in which burns developed in the course of radio short wave and ultra-short wave therapy are given. The first two cases are from my own material. The third case I was called in to see; this patient received treatment by a salesman

Fig. 1 (case 2).—Second degree burn. Blister over the metacarpophalangeal joint of the thumb after twenty-four hours.

of short wave apparatus. These three cases were second degree burns, of small area, which healed within a few weeks. Cases 4 and 5 were reported to me. Case 6 was observed and is reported by Dr. G. O. Berg. These three cases were third degree burns, with extensive destruction eventually necessitating skin grafts.

CASE 1.—A girl, aged 11 years, was treated for fungous infection of the nail bed of the fourth right finger with a 6 meter, ultra-short wave machine of 225 watt output. The electrodes

From the Arthritis Department, Cedars of Lebanon Hospital.

were covered with hard rubber one-eighth inch thick. The electrode under the palm was 1½ inches by three-sixteenths inch; over the affected nail an electrode nine-sixteenths by three-eighths inch was applied. Between the electrodes and the hand, towels about one-half inch thick were applied. The current was too small to register on the ammeter, which indicates tuning of the patient's circuit in resonance with the primary circuit. During the second treatment, however, the ammeter indicated 200 milliamperes. The child complained of a burning sensation. Treatment was interrupted immediately.

Fig. 2 (case 6).—Third degree burn of the calf of the left leg. Necrosis of the skin, fourteen days after treatment.

The skin inside and below the nail was white. The finger was throbbing. Within twenty-four hours a blister the size of a five-cent piece (21 mm.) had developed and burst; the red dermis was exposed. Healing was slow.

CASE 2.—A woman, aged 32, was treated with the 6 meter, 225 watt output ultra-short wave machine, for stiffness of the phalangeal joint of the right thumb. Hard rubber electrodes 3 by 2 inches and a 1-inch padding of felt and towels were applied to the palmar and dorsal aspect of the right hand. During the third application, the patient complained of pain. The treatment was interrupted and two white spots were noticed.

Within four hours a blister formed (fig. 1) over the protuberance of the base of the first phalanx of the thumb. The blister was punctured the next day; the dermis was very red. In the course of the next few days a grayish scab formed, under which healing proceeded and was complete within two weeks.

CASE 3.—A woman, aged 55, was treated for rheumatic pain over the lumbar spine with a 9 meter ultra-short wave apparatus of 150 watt output. Hard rubber electrodes approximately 5 by 3 inches were used over the lumbar spine and abdomen. Padding of towels was used. When I saw her there was an excoriation of the skin over the second lumbar vertebra about 1½ by 1 inch. The base was formed of the corium. The burn had occurred two days before.

CASE 4.—A middle aged man was treated over the chest for fulminant pneumonia with short wave apparatus of unknown wavelength. An extensive burn with destruction of the skin was produced. The man died of pneumonia.

CASE 5.—A man was treated for sinus infection with a short wave apparatus. One rubber electrode was applied to the neck and the other over the face and nose. Severe burn and destruction of the tip of the nose was produced.

CASE 6 (reported by Dr. Berg).—A college student received short wave therapy consisting of approximately 3,000 milliamperes through the calf of the left leg. A representative of the company selling the machine was present while these treatments were being given. The electrodes were placed anteriorly and posteriorly with towel padding between. The duration of the treatment was about twenty minutes. No sensation of heat, burning or any discomfort whatever was noticed by the patient.

The electrodes were then placed one below the foot and the other over the knee. While 3,000 milliamperes was given with this placement the entire leg felt uncomfortably warm. Treatment was discontinued. Three small blisters on the dorsum of the calf were noticed on cessation of treatment. In two days it was apparent that an extensive burn had been produced.

Figure 2 shows the condition of the burn fourteen days later. The area measured 3 by 1¼ inches. There is now considerable sloughing of the superficial tissues and beginning granulation. This area will need a skin graft.

Figure 2 seems to show by the marking of the towels on the skin that the burn was produced while the electrodes were in the anterior-posterior position, during which time the patient experienced no discomfort of any sort.

## EXPERIMENTAL BURNS [1]

Fully developed rats were exposed, under ether anesthesia, to the electrical field of the 6 meter, ultra-short wave apparatus of 250 watt output. Hard rubber electrodes measuring 1¼ by 1$^{3}/_{16}$ inches were used. They were applied for the treatment of the lower parts over the abdomen and back and for the treatment of the brain to both sides of the head. The rectal temperature was controlled during and after treatment by a mercury thermometer and was raised in only one case. Whenever the energy in the treatment circuit was small,

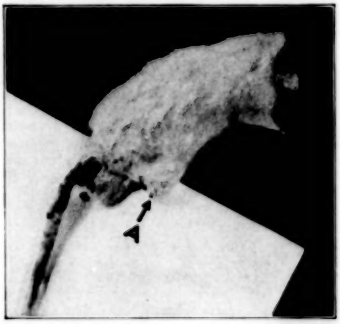


Fig. 3.—Experimental burn in a rat. Right hind leg has fallen off. Stump of femur at *A*. Slough at the base of the tail. This is about twelve days after treatment.

no untoward general or local effects were noticed immediately or later. As soon as the energy was increased to register over 100 milliamperes on the tuning ammeter, however, burns developed in typical locations. When the electrodes were applied to the head, the burns involved the ears and fore legs; with the electrodes over the back and abdomen, the hind legs, base of the tail, testicles, penis and anus were

1. Assistance in the animal experimentation was given by Mr. H. M. Rubin and Mr. H. J. Rubin.

involved. Sometimes, however, milder burns developed on the ears and forelegs, even when only the lower parts were treated. The burned skin immediately appeared grayish, singed or brownish red. Thin parts, such as the ears and limbs, shriveled, turned black, and fell off without perceptible bleeding or suppuration. The ears fell off in toto or in part within three to twenty days. The legs became contracted; the hip joint, above the burn, was indurated; the legs fell off within two to nine days, exposing a black stump of the femur. These severe burns therefore offered a clinical symptomatology of dry gangrene (fig. 3).

The thicker parts, the base of the tail, testicle and anal region, developed first sloughing of the skin and soft tissues, so that tendons and bone were laid bare, pus pockets formed and finally the tail separated, usually between nine and twenty-five days. One very small tail, which was directly treated, fell off in three days.

Over the abdomen, especially around the anus and penis, hard infiltrations developed; twice anal fistulas developed. The skin of the scrotum sometimes sloughed off in places. A very interesting edema of the fore leg developed in a rat treated over the abdomen (fig. 3). The skin was bluish but intact. The edema, which first was noticed over the wrist, seven hours after treatment, spread in the next days over the entire leg and persisted for two weeks. On the sixteenth day a small but deep slough developed and demarcation and suppuration were observed to precede healing. This slow healing, even of milder burns, parallels the observation in patients.

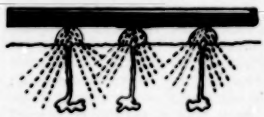


Fig. 4.—Schematic drawing of skin with three sweat glands and sweat drops on the surface, showing the concentration of the field produced by perspiration.

The general condition of the rats was good. The temperature and appetite were normal, even in animals that lost legs and tails. One rat died in convulsions two weeks after the burns occurred.

### THE MECHANISM AND THE PREVENTION OF BURNS

On the basis of observation and experimentation, the following factors seem to be responsible for the production of burns in the short wave electrical field:

1. *The Surface Effect.*—It was found on cadavers that, for every rise of 1 degree centigrade in the femur, the temperature of the skin of the thigh rose 6.4 degrees. The accumulation of heat in the tissues adjoining the electrodes is augmented by unsuitable insulating material of the electrodes and padding, such as soft rubber and felt, which heat up during the treatment. This surface heating is well illustrated by the following experiment:

A board 1 inch thick was placed between two round adjustable hard rubber electrodes (Schliephake electrodes). The maximum output of a 6 meter 225 watt machine was turned on. The temperature rise read on a mercury thermometer inserted in a hole in the middle of the board was 73 degrees C. in a two minute period. When an air gap of one-half inch was formed between the board and the electrodes, the rise of temperature in the same period was only 7 degrees C., or 10 per cent of the value without the air gap.

The interposition of air between electrodes and skin, producing an enormous loss of energy, forces the employment of powerful apparatus in order to treat efficiently; on the other hand, it is the surest means to eliminate the danger of surface accumulation of heat. Compared with the high resistance of the air, the differences between the tissues become very small; this makes the heating of the skin conform to the heating of the deep structures. None of the burns occurred with air gaps. For the prevention of accumulation of heat on the surface, the necessity of suitable distance of the electrodes from the skin is evident. This gap should be filled out by a good insulator that does not heat up under treatment. Adjustable air gap electrodes of a special glass were found most satisfactory; next came adjustable hard rubber electrodes. Soft rubber is the least desirable; it heats up readily, which decreases its dielectric properties and may also develop small defects through which direct current flow and sparking occur. Most machines in this country, however, are not equipped yet with air gap electrodes and therefore padding must be used between the electrodes and the skin. An absorbent material, such as cotton, rubber sponges or tissue paper, which does not heat so much, is to be preferred to the commonly recommended felt.

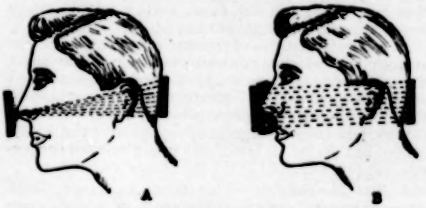


Fig. 5.—*A*, acro-effect: Concentration of the field at the tip of the nose, with danger of burn. Too close application and no leveling of the nose with the surface of the face. *B*, correct application and padding of the nose and distance from the electrodes spread the field homogeneously.

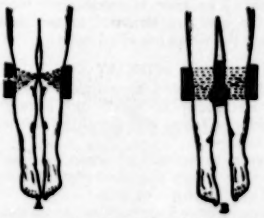


Fig. 6.—*A*, acro-effect of the protuberance of the tibias between the knees. *B*, correct application; padding between the knees spreads the field homogeneously.

2. *Size of Electrodes.*—The smaller the electrodes, the greater is the density of the electric field and the greater therefore the heating effect. With the apparatus previously mentioned but with electrodes about three times as large applied directly to the 1 inch thick board, the increase in temperature in two minutes amounted to only 5 degrees C. It is therefore necessary to decrease the energy of the apparatus or, better yet, to increase the distance of the electrodes from the skin in treating small areas such as the fingers or the

teeth. Too little distance, with a very small electrode, was responsible for the burn over the nail in case 1.

In thin areas, such as the fingers, it is possible that the surface heat of both electrodes creates a higher temperature in the deeper tissues than the skin. A burn could develop in the deeper structures over intact skin. This perhaps explains the peculiar edema of the foreleg of the rat shown in figure 3.

3. *Perspiration.*—Sweat contains electrolytes which transform the surface of the skin into a good conductor and decrease its resistance. The density of the field is therefore greater in the moist surface. This causes overheating and eventual burns (fig. 4).

Sudden formation of sweat drops explains the rapidity with which burns were observed to occur under the treatment (fig. 1, case 2). Control of sweating, by absorbent material, or interruption of treatment is therefore necessary to prevent burns. Treatment over clothes, advertised as a great advantage over diathermy, should be rejected. It is not only unhygienic but dangerous. It promotes and at the time hides perspiration.

4. *The Acro-Effect.*—This term, from the Greek ἄκρον, extremity, designates the action of a short wave electrical field on pointed parts such as the nose, ear lobes, finger tips, bony protuberances such as the olecranon, tubercle of the tibia, spinous process of the vertebrae, and base of phalanges. Here the areas are reduced to a minimum; the concentration of energy therefore is at a maximum; the pointed parts act like antennae. They were the common locations of the clinical as well as the experimental burns (cases 1, 2, 3 and 5). This concentration of current in pointed parts occurs even when they are in the middle of the field at the greatest possible distance from the electrodes. It is often noticed in treating both knees, by application of the electrodes at the outside of each knee, that the patient feels overheating first at the inside of the knees, owing to this concentration of the field in the pointed protuberances of the medial condyles of the tibias (fig. 5). The greatest care must be taken to protect protuberances in every part of the field. By proper distance and padding (fig. 6) the density of the field is made to spread homogeneously over the whole treated area. The nose is made level with the surrounding, the ears are strapped to the skull and the gaps between the tibias are filled out.

SUMMARY

The widely circulated assumption that the use of condensor electrodes in short and ultra-short wave therapy excludes burns and simplifies the technic is a dangerous fallacy.

In six cases, three each of second and third degree burns, the first group produced slow healing blisters, the second total necrosis of skin.

Burns were produced in rats, ranging from edema to gangrene and loss of ears, limbs and tails.

Sufficient energy, proper electrodes and distance from skin, absorption of perspiration, and constant control of patient and apparatus are imperative in order to prevent damage and derive the benefits of short and ultra-short wave therapy.

1930 Wilshire Boulevard.

**Soda and the Cooking of Vegetables.**—The addition of soda greatly increases the rate of destruction of vitamin B, and should be avoided in so far as is practicable in the cooking of fruits and vegetables.—Sherman, H. C.: Food and Health, New York, Macmillan Company, 1934.

# AN ANEMIA ASSOCIATED WITH A FISH TAPEWORM (DIPHYLLOBOTHRIUM LATUM) INFESTATION

THOMAS N. HUNNICUTT Jr., M.D.
NEWPORT NEWS, VA.

Many cases of infestation by the fish tapeworm have been reported in this country, principally in localities settled by emigrants from the Scandinavian countries. Magath,[1] in a recent paper on the Relation of Diphyllobothrium latum infestation to the public health, reviewed the literature exhaustively from the point of view of the mode of spread and the incidence of the foreign, as well as of the native, cases. He showed that the prediction of Stiles,[2] made more than a quarter of a century ago, that the infestation would soon become endemic in this country was now fully realized.

Magath asserts that the anemia of the fish tapeworm host, when it occurs, is always of the primary type. He points out, however, that this is a very rare condition unless the literature of Finland is examined. Even then the incidence there, as reported by Ehrström,[3] ranges from 1 in 5,000 to 1 in 10,000, but some have reported an incidence as high as 1 in 700. Magath thinks that other factors are at work when anemia occurs in the presence of infestation by this parasite, and, at best, the presence of Diphyllobothrium is considered only as a "trigger" that sets off the illness (anemia).

Schauman,[4] who has been the foremost European investigator of this problem, maintains that Diphyllobothrium is capable of causing an anemia which is not distinguishable from true primary pernicious anemia and that the reason the incidence of the disease is so small is that the "ordinary host is refractory toward the anemia causing agent of the tapeworm."

Piney[5] calls attention to the close resemblance between this anemia and true primary pernicious anemia. He also feels that this condition may be elicited in some by the toxins of the fish tapeworm but thinks there probably exists a constitutional predisposition in these patients. Clough[6] classifies this anemia under the differential diagnosis of pernicious anemia, but he feels as Piney did that there are probably other factors than the mere presence of the worm.

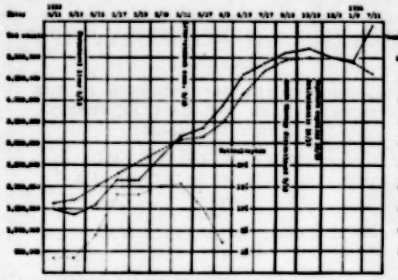
Birkeland,[7] in a recent work, reviewed all the foreign as well as the American literature on bothriocephalus anemia, and, after presenting the observations and opinions of apparently all who have written on this subject, in an unbiased but critical manner, concluded that the anemia occurring in symbiosis with an infestation by Diphyllobothrium is probably not due to any specific substance elaborated by this parasite but to a constitutional factor which would probably cause this

From the Tuxedo Memorial Hospital, Tuxedo Park, New York.

1. Magath, T. B.: The Relation of Diphyllobothrium Latum Infestation to the Public Health, J. A. M. A. **101**: 337-341 (July 29) 1933.
2. Stiles, C. W.: Taeniasis-Cestode Infection, in Osler, William, and McCrae, Thomas: Modern Medicine, ed. 1, Philadelphia, Lea Brothers & Co., 1907, pp. 567-568.
3. Ehrström, R.: Zur Frage des gastrointestinalen Ursprungs der perniziosen Anämie, Ztschr. f. klin. Med. **105**: 106-117, 1927; Zur Kenntnis der Dumparasiten in Finnland, Acta med. Scandinav. **64**: 29-68, 1926.
4. Schauman, O.: Die perniciose Anämie im Lichte der modernen Giftbypothese, Samml. klin. Vortr. 1900, pp. 231-282. Schauman, O., and Saltzman, F.: Die perniziose Anämie, in Schittenhelm, A.: Handbuch der Krankheiten des Blutes und der blutbildenden Organe, Berlin, Julius Springer **2**: 100-258, 1925.
5. Piney, A.: Recent Advances in Hematology, Philadelphia, P. Blakiston's Son & Co., 1927, p. 71.
6. Clough, P. W.: Diseases of the Blood, New York, Harper & Bros., 1929, p. 141.
7. Birkeland, I. W.: Bothriocephalus Anemia, Medicine **11**: 1-139 (Feb.) 1932.

type of patient to have a pernicious anemia without the presence of the parasite, granting that there occurs some unknown precipitating factor in this disease. He considers patients who suffer and survive bothriocephalus anemia as having had an abortive form of true primary pernicious anemia. He found no proof in his study that tapeworm anemia is a clinical entity.

Isaacs, Sturgis and Smith [8] studied a patient with a fish tapeworm infestation who had a typical blood and



Red cell count (solid line), hemoglobin (broken line), percentage of reticulocytes (dotted line) and course of the color index.

a clinical picture of primary pernicious anemia which was amenable to liver therapy before removal of the tapeworm and who had no relapse of the anemia following the eradication of the parasite, even when liver therapy was stopped. The patient's mother in this case had died of pernicious anemia. In their study, they seemed to think that the case was one of a tapeworm anemia, but they could not demonstrate the presence of soluble toxins by intradermal tests with saline suspensions of the tapeworm, and they conceded that this might have been an incidental infestation in a true primary pernicious anemia.

Seyderhelm [9] has demonstrated that the ground-up body of the fish tapeworm has a hemolytic action both in vitro and in vivo.

The present report is concerned chiefly with the question of anemia caused by or at least accompanying a case of fish tapeworm infestation and its response to liver therapy, as well as the continued convalescence of the patient after removal of the parasite and the discontinuing of specific therapy for the anemia.

## REPORT OF CASE

*History.*—J. K., a man, aged 24, born in a small fishing village in Finland, came to this country in 1921 at the age of 11 years and has lived in and around New York City since then, working at odd jobs. For some time he has been employed as a houseman just outside the city. He has spent several winters in Florida in the last few years, traveling with his employer.

The patient's father died at the age of 45 of "rheumatism," but his mother is living and well (aged 70) and two sisters are living and well (aged 30 and 35). Two brothers are dead; they died in childhood of an unknown cause. There was no family history of anemia.

There was no history of previous illness until one year after the patient came to this country, and then he had a mild attack of scarlet fever with no sequelae. The cardiorespiratory, gastrointestinal and genito-urinary histories were negative. The patient did state later that he had had worms as a child, was treated for them and had passed no segments since then. There was no history of any injuries or operations.

When first seen the patient's chief complaint was general weakness, right-sided headache, vertigo, nausea and vomiting. The present illness began a year before admission, when he noted a feeling of being below par most of the time and an insidious progressive general weakness until two months before, when it became very noticeable, interfering with his work. Accompanying this had been a dull right-sided headache and, recently, attacks of vertigo. For the past two weeks he had been frequently nauseated with the vertigo attacks and had vomited small amounts of undigested food. The vomitus had not been bile tinged, nor did it contain fresh blood nor had it been of a coffee grounds character. Several days previously friends had commented on the appearance of his skin, which was of a lemon yellow hue.

*Physical Examination.*—He was well developed and fairly well nourished but appeared ill. The temperature was 99.4 F., the pulse 78 and regular, the respiration rate 22, and the blood pressure 110 systolic, 70 diastolic. The skin was lemon colored. There were no scars or eruptions. The head was normal in size and shape, the pupils were equal, reacting to light, and the sclerae were clear. There was no evidence of nasal disease. The lips were pale and all mucous membranes appeared anemic. The tongue was smooth but did not have the appearance of a typical glossitis; the teeth were sound. The pharynx and nasopharynx were not inflamed. The tonsils were atrophic. There was no stiffness or adenopathy of the neck. The thorax was symmetrical, with a free and equal expansion. The heart was not enlarged on percussion. The sounds were of good quality and there were no murmurs. The lungs were resonant throughout, with no râles. The abdomen was flat; there was no subcostal tenderness or muscle spasm. The liver edge was felt two fingerbreadths below the costal margin in the midclavicular line. It was smooth, firm and not tender. There were no abnormalities of the genitalia or extremities. The patellar reflexes were hypo-active but equal. There were no sensory changes of the body or extremities.

*Blood Examinations*

| Date | Red Cell Count | Hemoglobin (Sahli) per Cent | Color Index | Reticulocytes, per Cent | White Cell Count |
|---|---|---|---|---|---|
| 5/11/33 | 1,500,000 | 32 | 1.06 | 6.0 | ..... |
| 5/12/33 | 1,370,000 | 34 | 1.24 | 6.0 | 4,600 |
| 5/13/33 | Intramuscular liver begun | | | | |
| 5/15/33 | 1,680,000 | 40 | 1.25 | 4.0 | ..... |
| 5/17/33 | 2,500,000 | 46 | 1.04 | 13.5 | ..... |
| 5/19/33 | 2,500,000 | 51 | 1.15 | 13.5 | ..... |
| 5/20/33 | ..... | .. | .... | 15.0 | ..... |
| 5/22/33 | 3,100,000 | 61 | 0.98 | 13.5 | ..... |
| 5/23/33 | Oral liver begun | | | | |
| 5/27/33 | 3,400,000 | 62 | 0.91 | 10.0 | ..... |
| 6/ 3/33 | 3,980,000 | 70 | 0.89 | 2.0 | 10,600 |
| 6/19/33 | 4,000,000 | 93 | 0.90 | .... | ..... |
| 7/17/33 | 4,800,000 | 93 | 0.86 | .... | ..... |
| 9/18/33 | 5,200,000 | 89 | 0.85 | .... | ..... |
| 9/19/33 | High vitamin diet begun | | | | |
| 10/19/33 | 5,440,000 | 100 | 0.92 | .... | 12,700 |
| 10/19/33 | Antihelmintic (oleoresin of aspidium) | | | | |
| 10/20/33 | Tapeworm expelled | | | | |
| 11/ 9/33 | ..... | 87 | .... | .... | ..... |
| 12/ 6/33 | 5,000,000 | 100 | 1.00 | .... | ..... |
| 1/ 8/34 | 4,980,000 | 98 | 1.00 | .... | ..... |
| 7/11/34 | 5,900,000 | 92 | 0.78 | .... | ..... |

On admission to the hospital, the red blood cell count was 1,370,000; white blood cell count, 4,600; hemoglobin, 34 per cent (Sahli); color index, 1.24; differential count: polymorphonuclear leukocytes 64 per cent (filament 59 per cent, nonfilament 5 per cent), lymphocytes 30 per cent, monocytes 3 per cent, eosinophils 1.5 per cent, basophils 0.5 per cent (3 normoblasts and 1 megaloblast were seen, with marked anisocytosis, poikilocytosis and moderate polychromatophilia with about 30 per cent macrocytes and true microcytes), reticulocytes 0.6 per cent. The specific gravity of the urine was 1.012; it was acid, and there was the slightest possible trace of albumin but no

8. Isaacs, Raphael; Sturgis, C. C., and Smith, Millard: Tapeworm Anemia, Arch. Int. Med. 48: 313-321 (Sept.) 1928.
9. Seyderhelm, R.: Zur Pathogenese der perniciosen Anemien, Deutsches Arch. f. klin. Med. 156: 95-147, 1918.

sugar or acetone; the sediment contained a very occasional white blood cell. A specimen of stool was negative for occult blood.

The gastric analysis following an Ewald test meal showed no free hydrochloric acid and a total acidity of 4. The gastric contents contained 50 per cent of mucus. There was no lactic acid or occult blood. Five months later the laboratory examination was as follows: red blood cell count, 5,440,000; white blood cell count, 12,700; hemoglobin, 100 per cent (Sahli); color index, 0.92; differential count: polymorphonuclear leukocytes 70 per cent (filament 51 per cent, nonfilament 19 per cent), lymphocytes 13.5 per cent, monocytes 10 per cent, eosinophils 0.5 per cent, basophils 1 per cent. The blood counts are given in the accompanying table.

*Course and Treatment.*—Because of the nausea and vomiting, parenteral liver extract was given in the gluteal muscles, and after the first forty-eight hours the patient began to improve symptomatically and in seventy-two hours clinically. The red cell count rose and continued to increase steadily. There was a normal response of the reticulocytes. A graph of the blood examinations shows the hematopoietic response.

Approximately eight weeks after treatment was begun, the patient's blood was normal and he was carrying on his usual duties. Following the parenteral liver, which was given in maximum doses for ten days, he was given capsules of liver-stomach concentrate. This therapy was discontinued four months later, when the red cell count and the hemoglobin continued to be normal. He was then put on a liberal high vitamin diet.

The patient continued to be well but came in one month later complaining of the passage of an intestinal worm. A stool examination revealed ova of the fish tapeworm (Diphyllobothrium latum). Five months after the patient was first seen he was again admitted to the hospital and, after suitable preparation, oleoresin of aspidium was given (four 15 minim capsules). The next day, four apparently complete tapeworms were expelled, as well as many segments of varying lengths. Two weeks following this the stools still contained ova, and it was thought advisable to give another anthelmintic. However, after a delay of a month before the second treatment was started, the stools became negative and remained so on several examinations. A gastric analysis done at this time showed a continued absence of free hydrochloric acid. On discharge, after eight months' continuous observation, the patient had no complaints and he appeared well; the red blood cell count was 4,988,000 with a hemoglobin of 98 per cent. Seven months later he came in for a check over. At this time he had no complaints except a mild constipation, which was controlled by the taking of liquid petrolatum. He had passed no segments of worms, and a blood examination showed a red cell count of 5,940,000 with a hemoglobin of 92 per cent.

## SUMMARY

1. While it is granted that the anemia occasionally occurring in persons who harbor the fish tapeworm is always primary or pernicious in type, the evidence is not clear as to what factors cause this anemia. Some investigators doubt the probability that the presence of this parasite is one of them. They hold that these cases are true primary pernicious anemia occurring in certain people who happen to harbor the fish tapeworm. Many are of the opinion that these patients have a certain constitutional predisposition to anemia. Others have reported recovery from tapeworm anemia by removal of the parasite and feel that Diphyllobothrium is capable not only of precipitating an anemia but of directly causing one.

2. This patient apparently had been infected with the fish tapeworm since childhood, but symptoms of anemia did not develop until the age of 24. The pernicious anemia-like blood picture responded to liver therapy while the patient still harbored the parasite, and he continued to be well, except for an asymptomatic achylia, after the discontinuance of the liver and the subsequent removal of the worm. The case was followed continuously for eight months and was seen again at the end of fourteen months.

3. In view of the time already elapsed (twelve months) without a return of the anemia and with no specific therapy during this period, it would seem that this is probably a case of a true tapeworm anemia.

303 Medical Arts Building.

# BREAST AND ARTIFICIALLY FED INFANTS

## A STUDY OF THE AGE INCIDENCE IN THE MORBIDITY AND MORTALITY IN TWENTY THOUSAND CASES

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HEYWORTH N. SANFORD, M.D.
CHICAGO
AND
HARRY SCHWARTZ, M.D.
KENOSHA, WIS.

In a previous communication we[1] reported on the incidence of morbidity and mortality among 20,000 artificially and breast fed infants and the conditions under which these statistics were obtained. A comment on that paper has led us to insist on certain points. In the first place, these children were in an environment in which they were peculiarly subjected to the chance of infection; secondly, the group of partially breast fed includes two classes of children: (1) those who were entirely breast fed for a time and then had

TABLE 1.—*Monthly Morbidity*

| Month of Life | Respiratory | | Gastro-Intestinal | | Unclassified | |
|---|---|---|---|---|---|---|
| | Number | Per Cent | Number | Per Cent | Number | Per Cent |
| **Breast Fed** | | | | | | |
| 1 | 14 | 0.14 | 6 | 0.06 | 0 | |
| 2 | 108 | 1.06 | 49 | 0.49 | 21 | 0.22 |
| 3 | 282 | 2.71 | 51 | 0.52 | 20 | 0.22 |
| 4 | 356 | 3.71 | 68 | 0.70 | 29 | 0.29 |
| 5 | 396 | 3.95 | 69 | 0.71 | 38 | 0.39 |
| 6 | 469 | 4.62 | 71 | 0.72 | 56 | 0.59 |
| 7 | 462 | 4.75 | 77 | 0.79 | 59 | 0.61 |
| 8 | 397 | 3.92 | 73 | 0.73 | 53 | 0.55 |
| 9 | 348 | 3.57 | 62 | 0.67 | 46 | 0.47 |
| **Partially Breast Fed** | | | | | | |
| 1 | 20 | 0.23 | 12 | 0.14 | 0 | |
| 2 | 106 | 1.20 | 130 | 1.50 | 7 | 0.08 |
| 3 | 294 | 3.40 | 167 | 1.80 | 31 | 0.30 |
| 4 | 412 | 4.70 | 152 | 1.80 | 57 | 0.60 |
| 5 | 442 | 5.10 | 196 | 2.20 | 79 | 0.80 |
| 6 | 461 | 5.40 | 149 | 1.70 | 108 | 1.10 |
| 7 | 466 | 5.50 | 119 | 1.30 | 83 | 0.90 |
| 8 | 409 | 4.60 | 110 | 1.20 | 71 | 0.80 |
| 9 | 316 | 3.70 | 65 | 0.70 | 83 | 0.90 |
| **Artificially Fed** | | | | | | |
| 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 2 | 4 | 0.08 | 2 | 0.01 | 1 | 0 |
| 3 | 23 | 1.20 | 17 | 0.60 | 6 | 0.30 |
| 4 | 32 | 1.50 | 24 | 1.40 | 12 | 0.70 |
| 5 | 81 | 4.70 | 41 | 2.40 | 18 | 1.00 |
| 6 | 102 | 5.80 | 47 | 2.70 | 20 | 1.20 |
| 7 | 130 | 7.50 | 48 | 2.80 | 26 | 1.30 |
| 8 | 142 | 8.20 | 46 | 2.70 | 31 | 1.80 |
| 9 | 150 | 9.60 | 45 | 2.50 | 25 | 1.40 |

1. Grulee, C. G.; Sanford, H. N., and Herron, P. H.: Breast and Artificial Feeding, J. A. M. A. 103:735-738 (Sept. 8) 1934.

to be weaned and (2) those whose breast feeding had been complemented. The artificially fed group consisted only of those children who had been artificially fed from the first. We took only those cases which had been under our care for nine months with the exception of those children who were under our care continuously until the time of death.

This study comprises the same group of infants mentioned in the former paper.[1]

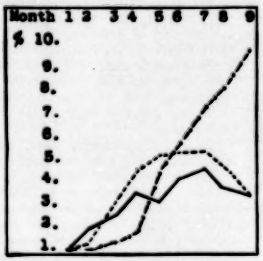



Chart 1.—Monthly morbidity, respiratory infections. In the charts the solid line denotes breast feeding, the broken line partial breast feeding, and the dot dash line artificial feeding.

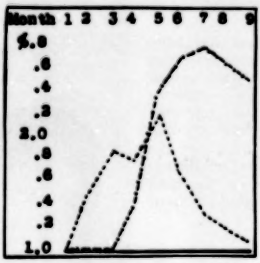



Chart 2. — Monthly morbidity, gastro-intestinal disturbances.

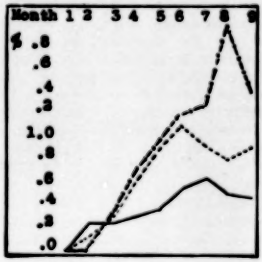



Chart 3.—Monthly morbidity, unclassified infections.

In table 1 the morbidity according to age is given in months, with the exact number of cases recorded for each month. With this information is given the percentage of these cases to the total number of infants in that group. These percentages are also expressed graphically. Table 2 gives the mortality with the age in months and the percentage of the total, as in the morbidity. These percentages are also expressed graphically in the charts.

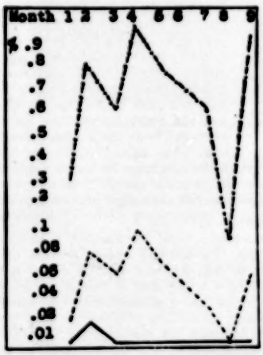



Chart 4.—Monthly mortality, respiratory infections.

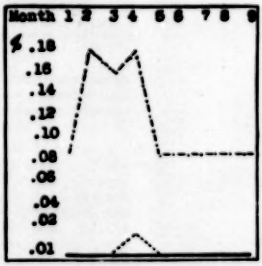



Chart 5. — Monthly mortality, gastro-intestinal disturbances. This graph is somewhat deceptive in that the highest mortality occurred from September 29 to October 4. Really the peak comes the last of September or the first of October.

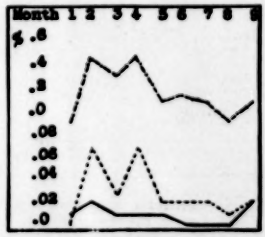



Chart 6.—Monthly mortality, unclassified infections.

## RESULTS

In the respiratory infections, it will be noted that for the first five months of life, while there is not a great deal of difference in the total incidence, there is a rise in all groups to the fifth month. The morbidity decreases after the sixth and seventh months in the breast and partially breast fed groups, while in the artificially fed the rise is steady through the ninth month. In the breast and artificially fed groups there is a fall after the seventh month.

The gradual rise in morbidity from all groups for the first six months might be explained in two ways: First, the infants are exposed to repeated infection. Second, some immunity may be inherited from the mother, which gradually lessens with age. In the breast fed and partially breast fed after the seventh month there is a gradual decrease in morbidity. Since at this time there is a marked rise in the curve for the artificially fed, it would seem likely that breast milk continued the immunity longer than the sixth month, while this function was removed in the artificially fed. The drop in the curves after the seventh month in both the breast fed and the partially breast fed groups may be the result of the protection that the increased period of life has given.

In the gastro-intestinal morbidity, there were not enough breast-fed infants with these disorders to calculate the percentage. Breast milk evidently guards the baby against gastro-intestinal disturbances. The peak of the partially breast fed infant is at 5 months, while that of the artificially fed infant is at 7 months. Both decrease rapidly as the child becomes older and evidently more tolerant to food.

The miscellaneous morbidity is somewhat similar to that of the respiratory disturbances. All types show a rapid rise to a peak at 5 months. The artificially fed curve, however, continues to rise to the eighth month and then falls.

We might say, therefore, in general that in all types of feeding the morbidity from infection increases each month until the fifth month. In the breast fed and partially breast fed it then decreases through the ninth month. In the artificially fed baby it continues to increase through the ninth month. From the gastro-intestinal disorders the breast fed baby is practically free, while the incidence for the partially breast fed baby increases to the fifth month and then decreases to the ninth month, and for the artificially fed baby increases to the seventh month and then decreases to the ninth month.

From the mortality curves the breast fed baby appears to be in danger only in the first month of life. The greatly increased mortality of the artificially fed baby in all months is very evident. In the respiratory infections for the first four months it is high, then decreases and rises again at the ninth month. The curves for the first four months are high for the artificially fed baby both in the gastro-intestinal disturbances and in the unclassified infections. In both instances there is a drop at the fourth month and almost a leveling of the curve through the ninth month.

### CONCLUSION

In the survey, according to age by months, of the morbidity and mortality for 20,000 infants, two things are most significant: First, there is a definite rise in the morbidity after the sixth month in all three groups of disturbances in the artificially fed, a rise that is not shared in by either the breast fed or the partially breast fed group. Second, the mortality for the breast fed infants is almost entirely in the first two months of life.

TABLE 2.—*Monthly Mortality*

| Month of Life | Respiratory | | Gastro-Intestinal | | Unclassified | |
|---|---|---|---|---|---|---|
| | Number | Per Cent | Number | Per Cent | Number | Per Cent |
| **Breast Fed** | | | | | | |
| 1 | 0 | 0 | 0 | 0 | 1 | 0.01 |
| 2 | 2 | 0.02 | 1 | 0.01 | 2 | 0.02 |
| 3 | 0 | 0 | 0 | 0 | 1 | 0.01 |
| 4 | 1 | 0.01 | 0 | 0 | 1 | 0.01 |
| 5 | 0 | 0 | 0 | 0 | 1 | 0.01 |
| 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 1 | 0.01 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 1 | 0.01 | 0 | 0 | 1 | 0.01 |
| **Partially Breast Fed** | | | | | | |
| 1 | 2 | 0.02 | 0 | 0 | 0 | 0 |
| 2 | 7 | 0.08 | 1 | 0.01 | 6 | 0.07 |
| 3 | 5 | 0.06 | 1 | 0.01 | 3 | 0.03 |
| 4 | 9 | 0.10 | 2 | 0.02 | 7 | 0.07 |
| 5 | 7 | 0.07 | 0 | 0 | 2 | 0.02 |
| 6 | 2 | 0.02 | 0 | 0 | 2 | 0.02 |
| 7 | 8 | 0.08 | 0 | 0 | 3 | 0.03 |
| 8 | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 |
| 9 | 7 | 0.06 | 1 | 0.01 | 2 | 0.02 |
| **Artificially Fed** | | | | | | |
| 1 | 5 | 0.33 | 1 | 0.09 | 1 | 0.09 |
| 2 | 14 | 0.82 | 3 | 0.18 | 8 | 0.47 |
| 3 | 10 | 0.64 | 2 | 0.18 | 5 | 0.33 |
| 4 | 18 | 1.02 | 3 | 0.18 | 8 | 0.47 |
| 5 | 14 | 0.82 | 1 | 0.09 | 2 | 0.14 |
| 6 | 5 | 0.33 | 1 | 0.09 | 3 | 0.18 |
| 7 | 10 | 0.64 | 1 | 0.09 | 2 | 0.14 |
| 8 | 1 | 0.06 | 1 | 0.09 | 1 | 0.09 |
| 9 | 13 | 0.84 | 1 | 0.09 | 3 | 0.18 |

310 South Michigan Avenue—952 North Michigan Avenue.

**The Tougher Meat Is Nutritive.**—Aside from the effect of market conditions, the price varies with the cut of meat purchased. There is a general preference for the tender cuts, which makes them more expensive. However, all parts of the carcass containing a large proportion of muscle are equal in nutritive value and with skilful preparation the tougher, cheaper cuts may be made very palatable.—Newburgh, L. H., and Mackinnon, Frances: The Practice of Dietetics, New York, Macmillan Company, 1934.

## *Clinical Notes, Suggestions and New Instruments*

### GYNECOMASTIA DURING HYPERTHYROIDISM

REPORT OF TWO CASES

PAUL STARR, M.D., CHICAGO

Gynecomastia is not an exceptionally rare condition. Various associated pathologic processes have been reported. Three reviews [1] have recently appeared. An excellent discussion by Hammett [2] appeared in 1920. Freeman's case of hyperthyroidism is mentioned. These reviewers do not include hyperthyroidism as a possible immediate cause of gynecomastia, their attention being centered on the influence of gonadal hormones. The cases to be described are significant because of the appearance of the anomaly during hyperthyroidism and its disappearance with the surgical interruption of the disease.

Fig. 1 (case 1). — Breast hypertrophy during hyperthyroidism.

Such an association must be unusual or have gone unnoticed as it has rarely been reported, although von Basedow [3] in 1848, while commenting on the suppression of sexual functions and the atrophy of the breasts in women due to this disease, stated that he had observed a man with hyperthyroidism who had swollen breasts which secreted colostrum. In Menville's [1] review two specimens are from patients with associated hyperthyroidism. Freeman [4] in 1916 briefly described a case in which a man, aged 37, the father of four children, developed bilateral gynecomastia three months after the symptoms of hyperthyroidism began. The effect of the further course of the disease was not mentioned. Besley [5] mentions a boy with gynecomastia who had goiter, exophthalmos, tremor and tachycardia. Sterling [6] in 1932 briefly reported three cases. In one of these the onset of the hyperthyroidism and gynecomastia was simultaneous. In a fourth extraordinary case, a boy, aged 16 years, had had progressive enlargement of the breasts since he was 9 years of age; operative removal of the breasts was followed by postoperative myxedema similar to that after thyroidectomy.

#### REPORT OF CASES

CASE 1.—H. R., a white man, aged 45, married, a painter, was born in the goiter belt. He had had mumps, orchitis, and testicular atrophy when he was 8 years old. A goiter was noted at 18 years and persisted to the time of admission. By a first marriage at 26 years he had a normal child. A second marriage at 41 had resulted in no issue. During the past two years sexual continence had been enforced by the ill health of his wife. Localized epigastric hunger distress, relieved by eating, began a year before admission to the clinic. Tremor, loss of weight, palpitation, dyspnea and finally exophthalmos began six months before observation. He states that enlargement of the breasts was noted during this time.

From the Thyroid Clinic, Northwestern University Medical School.

1. Schmidt, O.: Zur Kenntnis der Gynäkomastia, Ztschr. f. Konstitutionslehre **14**: 588-609 (May) 1929. Bredt, H.: Ueber Wesen und Formen der Gynäkomastia, ibid. **17**: 29-54, 1932. Menville, J. G.: Gynecomastia, Arch. Surg. **26**: 1054 (June) 1933.

2. Hammett, F. S.: Gynecomastia, Endocrinology **4**: 205-220 (April-June) 1920.

3. von Basedow, K. A.: Die Glotzangen, Wchnschr. f. d. ges. Heilk. number 49, 1848, p. 769.

4. Freeman, J. K.: Hyperthyroidosis Associated with Gynecomastia, Therap. Gaz. **40**: 8-14 (Jan.) 1916.

5. Besley, F. A.: Clinic of Surgical Clinics, Chicago, June 1917, p. 659.

6. Sterling, W.: Les corrélations endocrines des mamelles, Rev. neurol. **2**: 141-142 (Jan.) 1932.

The patient was 5 feet, 8¼ inches (175 cm.) tall and weighed 137 pounds (62 Kg.); the upper body measurement was equal to the lower. The pulse was 94 and regular; the temperature 98.2 F., and the blood pressure 114 systolic, 80 diastolic. Beard growth was normal; the voice was masculine. A lag of the lid and staring indicated exophthalmos. Tremor was marked. The tonsils were large. Many of the teeth were decayed. The thyroid was enlarged and nodular. The chest and heart were clear. The breasts were conical, resembling the adolescent female development. No colostrum was present (fig. 1). The penis was normal; both testicles were atrophic. There was female distribution of pubic hair. The basal metabolic rate (preoperative) was +31 and +24; after compound solution of iodine it was +20 and +14.

Because of hemorrhage during the operation, only right hemithyroidectomy was done, but under continued compound solution of iodine postoperatively the basal metabolic rate dropped to +4. The left thyroid remained palpable and nodular. The conical hypertrophy of the breasts rapidly receded during the postoperative remission of hyperthyroidism. Six weeks after operation compound solution of iodine was discontinued. Two weeks later the metabolic rate had risen to +13; one month later to +28 with a loss of 8 pounds (3.6 Kg.) from the

Fig. 2 (case 2).—Diffuse goiter and hypertrophy of right breast during hyperthyroidism; note emaciation.

highest postoperative weight, and tachycardia recurred. It was evident that a return of the hyperthyroid state had occurred. During this recurrence the left breast (on the unoperated side) enlarged. Further management was prevented by failure of cooperation by the patient.

CASE 2.—A single man, aged 28, a carpenter, born in Canada, whose family history showed no goiter in the parents or nine siblings, had had no significant previous illnesses. There had been a loss of 30 pounds (13.6 Kg.) with nervousness, palpitation, tachycardia, sweating, tremor, weakness and the appearance of a goiter during the past year; narcolepsy had also been definitely associated with these symptoms. Enlargement of the right breast was noted two months previous to admission.

The patient was 5 feet, 7 inches (170 cm.) tall and weighed 144 pounds (65.3 Kg.). The pulse was 104, the temperature 98.2 F., and the blood pressure 135 systolic, 55 diastolic. The skin was sweaty. There were a slight lid lag and staring. Tremor was present. There was diffuse lobulated goiter with bruit. The lungs and heart were not abnormal. The right breast was conical, with a base of glandular tissue 2 cm. in diameter (fig. 2). The left breast was questionably hypertrophied. The external genitalia were normal.

The blood Wassermann reaction was negative. Red blood cells numbered 4,780,000; white blood cells, 7,950, with hemoglobin (Sahli) 75 per cent. The differential count was: polymorphonuclear leukocytes 44 per cent, lymphocytes 54 per cent, eosinophils 5 per cent. A roentgenogram of the chest was negative. The urine was normal. Roentgen examination of the sella turcica was negative. The basal metabolic rate before compound solution of iodine was +49 and +54; after compound solution of iodine, +19 and +16. One month after operation, without compound solution of iodine it was −3 per cent.

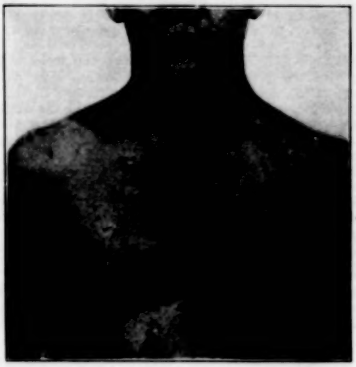
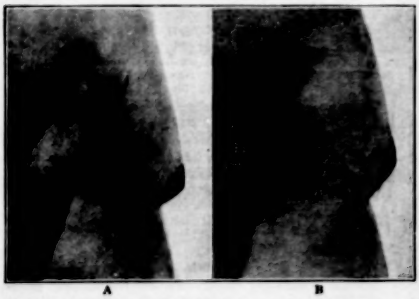


Fig. 3 (case 2).—Appearance after operation; Thyroidectomy scar and atrophy of breasts; note increased subcutaneous fat.

During examination, before treatment, sudden deep sleep would occur during any time that the patient's attention was not required. One month after thyroidectomy, although a gain of 16 pounds (7.3 Kg.) had occurred, the metabolic rate was normal and the pulse rate subnormal, there was no suggestion of narcolepsy and the right breast had atrophied to the normal male condition (figs. 3 and 4).

In the first case it is surprising that the gynecomastia did not occur in earlier years as a result of atrophy of the testicles,



A B

Fig. 4 (case 2).—*A*, appearance during hyperthyroidism; *B*, after operation, with normal metabolic rate.

as in Tellgmann's[7] case of unilateral hypertrophy after accidental destruction of one testis. It was necessary for hyperthyroidism to occur to establish the condition requisite for the production of breast hypertrophy.

The unilateral recurrence of gynecomastia on the side of the unoperated remaining thyroid lobe is also of great interest. Tellgmann suggests that the one-sidedness indicates a nervous

7. Tellgmann: Unilateral Gynecomastia After Loss of Testis, Deutsche med. Wchnschr. 52:2137 (Dec. 10) 1926.

cause, whereas the coincidence with recurrent hyperthyroidism demonstrates that a hormone factor is present.

In the second case the unilateralness was also evident. The additional feature of narcolepsy is unusual. Its coincidence with the hyperthyroidism and disappearance with its removal, exactly as was true of the gynecomastia, suggests that the same immediate exciting force (thyroid hormone) produced both abnormalities.

A physiologic study by Weichert and Boyd[8] may indicate the mechanism involved in these cases. They found that feeding thyroid to pregnant rats produced earlier and much greater hypertrophy of the breasts than occurred in control pregnant animals. Their explanation rests on their previous finding[9] of the production of pseudopregnancy by thyroid feeding. Their general theory is that hyperthyroidism interferes with theelin effects either by raising the tissue resistance to theelin, by destroying theelin, or by causing its excretion. The breast tissue then is under the unopposed influence of the pituitary.

It seems to be a tenable theory that in these cases hyperthyroidism enhances certain pituitary hormone action on the gonads and mammary glands. Primary pituitary action seems unlikely because of the abrupt cessation of the associated conditions with the interruption of the hyperthyroidism.

SUMMARY

In two cases of hyperthyroidism, gynecomastia appeared and disappeared with the onset and interruption of the primary disease.

8 South Michigan Avenue.

## A WATERPROOF LAPAROTOMY PAD OF GAUZE AND CELLOPHANE

FRANK H. LAHEY, M.D., BOSTON

A cellophane pad that I devised has now been employed for more than two years. A description of it together with the illustration is presumed with the possibility that it may prove useful to others.

Waterproof laparotomy pad of gauze and cellophane.

It consists of a pad measuring 14 by 16 inches, in the center of which is a layer of cellophane, on each side of which are two, three or four thicknesses of gauze either with selvage edges or with the edges turned in. A layer of stitching an inch or two from the edge of the gauze is carried around the entire pad, thus fixing the cellophane in place.

The advantages of this pad are particularly that it is waterproof so that it can be used to drape over wound edges during gastric and colon resections, thus protecting them from contamination. It can be sterilized in the autoclave with no ill effects and has the advantage when wet of being as soft and flexible as though no cellophane were included between the layers.

A diagrammatic illustration is included to show the pad itself.

Illustration *a* shows a face view of the pad; *b*, an edge on view to show the cellophane center.

605 Commonwealth Avenue.

8. Weichert, C. K., and Boyd, R. W.: Stimulation of Mammary Gland Development in Pregnant Rats Under Conditions of Experimental Hyperthyroidism, Anat. Rec. **53**: 157 (May) 1934.

9. Weichert, C. K., and Boyd, R. W.: Induction of Typical Pseudopregnancy in the Albino Rat by Means of Experimental Hyperthyroidism, Anat. Rec. **53**: 55-70 (Dec.) 1933.

## FOREIGN BODY ABSCESS OF THE PANCREAS

ROBERT S. BALDWIN, MARSHFIELD, WIS.

Although diffuse pancreatitis occurs with sufficient frequency to warrant its being included in the differential diagnosis of most abdominal disorders, a localized suppurative process in the pancreas is rarely seen.

I report here the observations made on a patient with an abscess of the head of the pancreas which surrounded a foreign body resembling a toothpick. So far as I could determine, no similar case has been observed heretofore.

### REPORT OF CASE

J. M., a man, aged 40, a farmer, was admitted to the hospital, July 18, 1934, after a tentative diagnosis of typhoid had been made. He said that his illness had begun three weeks previously with an infection of the upper respiratory tract. Chills and fever, epigastric pain, vomiting and diarrhea occurred soon afterward, and he had been in bed for two and one-half weeks. In addition, he noticed loss of appetite, headaches and dark colored urine. Ten years before admission, the appendix had been removed.

On physical examination he had a temperature of 104 F., a pulse of 140, and a respiratory rate of 28. He was well developed and well nourished and looked acutely ill. His skin was deeply icteric and dry. The liver was tender and extended three fingerbreadths below the costal arch. The diagnosis was liver abscess; also empyema of the gallbladder, tularemia, typhoid and malaria were considered.

Several specimens of urine contained large quantities of albumin, many erythrocytes and leukocytes. The erythrocyte count was 4,220,000 and the hemoglobin was 70 per cent. Leukocytes numbered 19,450, with 93 per cent polymorphonuclear neutrophils. The icteric index was 25. Three blood cultures were negative. The blood Wassermann reaction was negative; there were no agglutinins for typhoid, paratyphoid, Brucella abortus and Bacterium tularense. Malaria parasites were looked for several times but were not found. On one occasion the bleeding time and clotting time were one minute and three minutes respectively. The resistance of the erythrocytes to hemolysis was increased. No urobilin or urobilinogen was found in the blood. Bile was demonstrated in the stools. No typhoid organisms were demonstrated in the stool and urine. An elevation of the right diaphragm was seen on a roentgenogram of the chest.

The chills continued; as many as six or seven in twenty-four hours were observed, with rises of temperature to over 107 F. Six days after admission, because of the possibility of an empyema of the gallbladder, the right upper quadrant was explored. The liver was enlarged and mottled. The spleen was small. The gallbladder contained no stones and appeared normal. It was drained. In the sections made from a biopsy of the liver, only swelling of the liver cells was noted. Following the operation, slightly bile-stained material drained from the wound. The chills and fever persisted, the jaundice deepened, the icteric index rose to 80, and the hemoglobin dropped steadily in spite of two blood transfusions. After six weeks in the hospital the patient became irrational, his strength and state of nutrition failed rapidly and he died forty-eight days after admission, during the eleventh week of his illness.

The postmortem examination was made eight hours after death. The essential changes were as follows: The lungs were studded with multiple abscess cavities up to 1 cm. in diameter, containing thick greenish gray purulent material surrounded by zones of confluent bronchopneumonia. The liver was enlarged to 32 by 22 by 7.5 cm. and presented on the anterior surface of the right lobe a group of grayish yellow irregular slightly raised areas involving a region 5 cm. square. When the liver was cut into, these areas were seen as the outer walls of abscess cavities. Other cavities up to 2.5 cm. in diameter were found throughout the right lobe. They communicated with the intrahepatic bile ducts, which were distended and filled with thick grayish yellow purulent material. When the hepatic duct was followed toward the duodenum, no connection with the cystic duct was found, but it was seen to communicate with an abscess cavity 3 cm. in diameter in the head of the pancreas, in which was embedded a foreign

body of woody consistency, 4 cm. long and 1 mm. in diameter. The main pancreatic duct was 1.5 cm. in diameter and was filled with purulent material. The gallbladder was small and contained a thin yellow stained fluid. It was bound to the anterior abdominal wall and its cavity communicated with a fistulous tract that led to the skin. The cystic duct and common duct formed a continuous passage to the duodenum, which had no communication with the hepatic duct. The common duct was 8 mm. in circumference. Its mucosa was thin, slightly corrugated and stained yellow. The first portion of the duodenum contained a dirty greenish yellow purulent material; its mucosa was injected and edematous.

SUMMARY

In this patient a foreign body was found in an abscess cavity in the head of the pancreas. The abscess cavity had ruptured into the pancreatic duct and into the hepatic duct, giving rise to an ascending suppurative cholangeitis and multiple liver abscesses. From here the infected material was carried to the lungs, producing multiple abscesses. The brain was not examined, but the patient presented symptoms of cerebral involvement during the last few days before death, indicating a metastatic spread to the brain with the formation of abscesses.

## *Special Article*

## GLANDULAR PHYSIOLOGY AND THERAPY

# SEX-ENDOCRINE FACTORS IN BLOOD AND URINE IN HEALTH AND DISEASE

ROBERT T. FRANK, M.D.
NEW YORK

*NOTE.—This article and the articles in the previous issues of* THE JOURNAL *are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed, the series will be published in book form.*—ED.

The modern concepts of endocrinology have made it necessary to revise the obsolete humoral pathology of the ancients, which predicated four essential "humors"—blood, phlegm, black bile and yellow bile. Before the presence of hormones circulating in the blood had been demonstrated, the interpretation of many phenomena could be explained only by a humoral hypothesis. Today this hypothesis has been verified.

The first direct evidence by a specific test of hormones circulating in the blood was offered simultaneously and independently by Loewe [1] and his collaborators and by me and my group.[2] Since then other hormones have likewise been demonstrated in the circulation.

This contribution aims to show, as well as present limited knowledge permits, the content, both qualitative and quantitative, of the sex endocrine factors in the blood stream and excretions, and their variation under different physiologic and pathologic conditions. Clinically this evidence is of great importance, as it aids both in diagnosis and in evolving and carrying out therapeutic measures, as well as to some extent in explaining the disheartening failures that are so often encountered.

1. Loewe, S.: Nachweis brunsterzeugender Stoffe im weiblichen Blute, Klin. Wchnschr. **4**: 1407 (July 16) 1925.
2. Frank, R. T.; Frank, M. L.; Gustavson, R. G., and Weyerts, W. W.: Demonstration of the Female Sex Hormone in the Circulating Blood: I. Preliminary Report, J. A. M. A. **85**: 510 (Aug. 15) 1925.

### HISTORICAL

The researches of many investigators extending over a century have been necessary to furnish the little information that is available today.

In 1849 Berthold,[3] by transplanting the testes of cocks into other castrate cocks, with restoration of the male primary and secondary sex characters, offered convincing but indirect proof of the circulation of an internal secretion of the male gonad. This basic observation attracted little attention at the time and was forgotten for half a century. In 1896 Knauer [4] obtained similar evidence in the female by successfully transplanting ovaries into animals of the same species. In 1905 Halban,[5] by means of purely clinical data, showed that the placenta was an organ of internal secretion. Every one of his contentions has since been verified by experimental proof. In 1907 Leo Loeb [6] produced "experimental deciduomata"—maternal portions of the placenta which, as he showed, were due to the special corpus luteum hormone, now commonly called progestin. From 1912 on, Iscovesco [7] and soon thereafter Aschner,[8] Fellner,[9] Herrmann,[10] and Rosenbloom and I,[11] as well as others, prepared active extracts from the ovary and placenta, which caused estrogenic reactions on the uterus of castrate or immature animals.

All research on the estrogenic substances has been speeded up since 1923, when Allen and Doisy [12] published their simple, rapid and specific test for the qualitative and quantitative determination of these substances. The old progestin test of Bouin and Ancel [13] has recently been revived, with modifications, to demonstrate both qualitatively and quantitatively the presence of the special nidatory corpus luteum hormone "progestin."

The fundamental discovery of Smith [14] in 1925 and that of Zondek and Aschheim [15] shortly afterward that both ovary and testis remain dormant unless stimulated by the secretion of the adenohypophysis (anterior pituitary or prepituitary gland) and that this gonadotropic factor activates alike the gonads of the two sexes, changed all previous concepts. All evidence points to the thesis that the adenohypophysis is the "master" gland. It in turn may be influenced by other endocrine organs.

Knowledge of the testis hormone has been slowly but steadily increased since McGee [16] in 1927 succeeded in obtaining active lipoid extracts of the testes. The test for the testis hormone has been less clear cut and less rapid than that for the estrogenic hormone in the female, but by means of the capon test (comb, wattles

3. Berthold: Transplantation der Ovarien, Arch. f. exper. Path. u. Pharmakol., 1849, p. 42.
4. Knauer, E.: Einige Versuche von Ovarientransplantation an Kaninchen, Centralbl. f. Gynäk. **20**: 524, 1896.
5. Halban, J.: Die innere Sekretion von Ovarium und Placenta in ihre Bedeutung für die Function der Milchdrüse, Arch. f. Gynäk. **75**: 353, 1905.
6. Loeb, Leo: The Experimental Production of the Maternal Placenta and the Function of the Corpus Luteum, J. A. M. A. **52**: 1471 (Oct. 30) 1909; Centralbl. f. allg. Path. u. path. Anat. **18**: 563, 1907.
7. Iscovesco, M. H.: Compt. rend. Soc. de biol. **73**: 104, 1912.
8. Aschner, B.: Arch. f. Gynäk. **99**: 534, 1913.
9. Fellner, O. O.: Arch. f. Gynäk. **100**: 641, 1913.
10. Herrmann, E.: Monatschr. f. Geburtsh. u. Gynäk. **41**: 1, 1915.
11. Frank, R. T., and Rosenbloom, J.: Surg., Gynec. & Obst. **20**: 646, 1915.
12. Allen, Edgar, and Doisy, E. A.: An Ovarian Hormone, J. A. M. A. **81**: 819 (Sept. 8) 1923.
13. Bouin, P., and Ancel, P.: Sur les homologies et la signification des glandes à secretion interne de l'ovaire, Compt. rend. Soc. de biol. **67**: 464, 1909.
14. Smith, P. E.: Hastening Development of Female Genital System by Daily Homoplastic Pituitary Transplants, Proc. Soc. Exper. Biol. & Med. **24**: 131 (Nov.) 1926.
15. Zondek, Bernhard, and Aschheim, Selmar: Das Hormon des Hypophysenvorderlappens, Berl. Gynäk. Gesellsch., Jan. 22, 1926; Ztschr. f. Geburtsh. u. Gynäk. **90**: 378 and 391, 1926.
16. McGee, L. C.: Proc. Inst. Med. Chicago **6**: 242, 1927.

and spurs) (Walker,[17] Pézard [18]) as well as the various tests based on regeneration of seminal vesicle and prostate function, elaborated simultaneously and independently by Moore [19] and Loewe,[20] considerable advance has likewise been obtained.

At the present time the prepituitary gonadotropic factor or factors, estrogenic substance and progestin as well (the special corpus luteum hormone, nidatory or "pseudopregnancy" hormone) have been demonstrated in the blood stream and urine. A number of the sex-endocrine principles have been recovered from the placenta, bile, sweat, saliva and cerebrospinal fluid.

### NORMAL FEMALE

In the normal female the following hormones require consideration:

1. (*a*) The bisexual gonadotropic hormone or hormones of the adenohypophysis (Smith,[16] Zondek [21]).

(*b*) The bisexual anterior pituitary-like factor found in the blood, urine and placenta (Smith,[22] Zondek,[21] Collip [23]), which does not give a complete reaction in hypophysectomized animals.[24]

2. The estrogenic factor (Iscovesco,[7] Fellner,[9] Frank and Gustavson,[25] Allen and Doisy [13]).

3. The corpus luteum hormone (nidatory or pseudopregnancy factor) (Fraenkl,[26] Bouin and Ancel,[13] Leo Loeb,[6] Corner [27]), "progestin."

4. The testis hormone (Loewe [28]).

Each of these hormones can be demonstrated by specific tests. The interpretations of some investigators cannot be accepted fully because of failure to employ adequate methods. For example, titration of the prepituitary-like gonad stimulating principle or the prepituitary gonadotropic factor based on the reading of the vaginal spreads of immature rodents, without study of the sectioned ovaries, is inconclusive. Smith [22] has proved his contention that, to distinguish these two factors, hypophysectomized mice or rats must be employed.

All my gonadotropic titrations were performed on animals not deprived of their hypophyses. Therefore they are recorded as "anterior pituitary gonadotropic factor," which may prove to be either the one or the other (that is, either 1*a* or 1*b*) on further investigation.

*Normal Prepuberal Female.*—In the early years little or no gonadotropic factor or estrogenic factor can be detected in the blood or urine. Katzman and Doisy [29] found that the amount of gonadotropic factor excreted in the urine of prepuberal girls in twenty-four hours was less than from 2.4 to 3.7 rat units. Even before the onset of menstruation a cyclic excretion of estrogenic substance in the urine has been noted, as shown by our observations on three children:

One mouse unit at 4 years in 500 cc. of urine.
One mouse unit at 9 years in 250 cc. of urine.
One-half adult amount at 12½ years, two and one-half months before first menstruation, cyclically excreted.

*Normal Adult Cyclic (Menstruating) Female.*—Both gonadotropic and estrogenic principles occur cyclically in the normal, adult female in the blood and urine. There is evidence of a progestin cycle (Loewe) in the urine (to be shown later). A substance having the effects of the testis hormone is regularly found in the urine of females, as shown later (Loewe, Laqueur). Chart 1, based on more than 150 normal subjects, shows the details of these cycles in the blood and urine.

*Blood.*—Chart 1 shows that in the circulating blood approximately nine days after the onset of the preceding period, 25 rat units per liter of gonadotropic factor is found. Before and after this date the amount is less.[30] The estrogenic factor gradually increases to 25 mouse units per liter within one week of the anticipated menstruation and with the onset of the flow rapidly (within from two to six hours) disappears from the blood (i. e., less than 1 mouse unit in 40 cc.).

Estrogenic substance injected into the blood stream rapidly disappears from the circulation. As much as 2,000 mouse units injected into a rabbit had disappeared within one-half hour and could not be detected in the urine or tissues in twenty-four hours.[31] The mechanism of this disappearance could not be determined.

On the other hand, a concentration of estrogenic substance is found in the menstrual blood. It may attain from five to six times the concentration found in blood simultaneously drawn by wet cupping from the punctured portio vaginalis of the same patient.[32]

The upper blood level and excretory threshold for both gonadotropic and estrogenic factors appear to be constant and extremely delicately balanced, as will be shown later.

*Urine.*—The cycle of the gonadotropic factor in the urine has not been fully determined. Kurzrok [33] finds 1 rat unit to 60 cc. at the eleventh to the fourteenth day after the onset of the preceding menstruation and less at other times of the cycle.

The occurrence of estrogenic substance has been thoroughly studied by Frank and Goldberger [34] and

17. Walker, C. E.: The Influence of the Testis upon the Secondary Sexual Characters of Fowls, Proc. Roy. Med. Soc. (London) **1**: 153 (part 3) 1908.

18. Pézard, A.: Compt. rend. Acad. d. sc. **153**: 1027, 1911.

19. Moore, C. R.: A Qualitative Indicator for the Testis Hormone, Proc. Soc. Exper. Biol. & Med. **24**: 847 (June) 1927.

20. Loewe, S., and Voss, H. E.: Gewinnung, Eigenschaften und Testierung eines männlichen Sexualhormons, Akad. der Wissenschaften in Wien, Akadem. Anzeiger, 1929, No. 20. Deposited at Academy Jan. 24, 1927.

21. Zondek, Bernhard: Die Hormone des Ovariums und des Hypophysenvorderlappens, Berlin, Julius Springer, 1931.

22. Smith, P. E.; Engle, E. T., and Tyndale, H. H.: Differential Ovarian Responses After Injections of Follicle-Stimulating and Pregnancy Urine in Very Young Female Rats, Proc. Soc. Exper. Biol. & Med. **31**: 744 (March) 1934.

23. Collip, J. B.; Selye, Hans, and Thomson, D. L.: Gonad Stimulating Hormones in Hypophysectomized Animals, Nature **131**: 56 (Jan. 14) 1933.

24. The different ovarian responses obtained by means of anterior pituitary gland extracts, pregnancy urine and urine of castrates (or menopause) are confusing. Further differences are noted depending on whether the test animal has been hypophysectomized or not. For the present I consider it unwise to attempt to draw far reaching conclusions from these variations. Accordingly one can distinguish in the hypophysectomized animal between: (1) a full pituitary reaction due to gland extract, which induces growth of the follicle, ovulation and corpus luteum formation; (2) follicle stimulation (menopause and castration urine); (3) thecal and interstitial cell growth (pregnancy urine). The significance of these reactions is still a matter of doubt.

25. Frank, R. T., and Gustavson, R. G.: The Female Sex Hormone and the Gestational Gland, J. A. M. A. **84**: 1715 (June 6) 1925.

26. Fraenkl, L.: Die Funktion des Corpus Luteum, Arch. f. Gynäk. **68**: 438, 1903.

27. Corner, G. W., and Allen, W. M.: Physiology of the Corpus Luteum; Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum, Am. J. Physiol. **88**: 326 (March) 1929.

28. Loewe, S., and Voss, H. E.: Gewinnung, Eigenschaften und Testierung eines männlichen Sexualhormons, Sitz. der math.-naturwissen Klasse, Oct. 24, 1929 (Akad. d. Wissenschft., Vienna. Sealed Feb. 17, 1927).

29. Katzman, P. A., and Doisy, E. A.: The Quantitative Determination of Small Amounts of Gonadotropic Material, J. Biol. Chem. **106**: 125 (Aug.) 1934.

30. Frank, R. T.; Goldberger, M. A., and Spielman, Frank: A Method for Demonstrating Prepituitary Maturity Hormone in the Blood of Nonpregnant Women, Proc. Soc. Exper. Biol. & Med. **28**: 999 (June) 1931.

31. Frank, R. T.; Goldberger, M. A., and Spielman, Frank: Utilization and Excretion of the Female Sex Hormone, Proc. Soc. Exper. Biol. & Med. **29**: 1229 (June) 1932.

32. Frank, R. T., and Goldberger, M. A.: The Female Sex Hormone: IV. Its Occurrence in the Circulating and Menstrual Blood of the Human Female: Preliminary Report, J. A. M. A. **96**: 1686 (May 29) 1926.

33. Kurzrok, R.; Kirkman, I. J., and Creelman, M.: Studies Relating to the Time of Ovulation, Am. J. Obst. & Gynec. **28**: 319 (Sept.) 1934.

34. Frank, R. T., and Goldberger, M. A.: The Female Sex Hormone: XI, J. A. M. A. **94**: 1197 (April 19) 1930.

by others (Siebke[35]). The entire quantity excreted in thirty days amounts to about 1,500 mouse units. Considerable variations are encountered, but two periods of maximum excretion, the first corresponding to the theoretical time of full follicle ripening or ovulation (fourteenth day), and the second in the last week preceding the menses, are characteristic (chart 1).

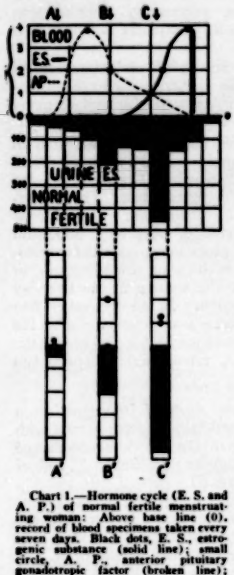



Chart 1.—Hormone cycle (E. S. and A. P.) of normal fertile menstruating woman: Above base line (0), record of blood specimens taken every seven days. Black dots, E. S., estrogenic substance (solid line); small circle, A. P., anterior pituitary gonadotropic factor (broken line); above 2½ = positive; below 2½ = negative; i.e., less than 1 mouse unit in 40 cc. of blood. Below base line, total excretion of estrogenic substance in urine. Figures to the left show amount in mouse units. Total excretion 1,500 mouse units of estrogenic substance. Each block represents three days. *A' B' C'* to show that single blood and urine specimens are valueless and misleading.

The chronological correspondence of increase in the estrogenic factor in the blood and increase of excretion in the urine demonstrates the great secretory activity of the ripe follicle and the active corpus luteum.

*Physiologic Menopause.*—When the climax is fully developed, no estrogenic substance is found either in the blood or in the urine. In 50 per cent of these women the content of gonadotropic factor is greatly increased in the blood (Zondek,[21] Fluhmann[36]). It may reach the high amount of 500 rat units per liter in contrast to the maximum norm in the cyclic female of 25 rat units per liter.

Estrogenic substance may be found in the blood and urine of women as long as from one to two years after onset of the menopause. It is often noted in younger amenorrheic women who, following a shorter or longer period of amenorrhea, again begin to menstruate. Before menstruation has reappeared, such changes are of diagnostic significance, ruling out the premature menopause.

Smith[22] has shown that the gonadotropic factor excreted in the menopause differs from the anterior pituitary-like gonadotropic factor from the urine of pregnancy and resembles that from the hypophysis itself.

### MANIFESTATIONS IN DISEASE

As early as 1914, long before the primary importance of the adenohypophysis had been discovered, I[37] emphasized that the response of the ovaries to stimuli, no matter what their source, could manifest itself only in one of two ways—underfunction or overfunction. This concept has been amply confirmed. The primary stimuli (or their absence) arise mainly, or perhaps exclusively, from the adenohypophysis and act on the ovaries.

*Underfunction of the Ovaries.*—In amenorrhea, oligomenorrhea and purely functional sterilities, and often also in dysmenorrhea, ovarian inactivity is recognizable by reduction in the amount of gonadotropic and estrogenic factors in the blood and the urine. These changes are readily visualized in chart 2, graphs *B*, *C* and *D*. The variations noted may show quantitative reduction in both blood and urine (subthreshold cycle), acyclic blood with reduced but typical urinary excretion, or complete absence of both blood and urinary cycles.

As the patients belonging to these three hormonic groups usually are clinically indistinguishable, accurate prognosis will depend exclusively on the hormonic changes, unless marked obesity or determinable thyroid or pituitary disease can be recognized, in which circumstances the prognosis will depend also on the gravity of the underlying primary endocrine disease. An impending return to normal conditions manifests itself by a reestablishment of normal blood and urinary hormone changes.[38]

*Artificial Menopause.*—An extreme degree of underfunction (absence of function) may be caused by operative or roentgen castration. Estrogenic substance is absent from blood and urine. The gonadotropic factor may be found increased as early as the tenth day after operation. More usually the increase, which is noted in at the most 50 per cent of the patients, develops after eight weeks and may persist indefinitely (Fluhmann[39]).

Removal of the uterus, with retention of the ovaries, does not affect the blood or urinary gonadotropic or estrogenic cycle.[38] The same applies to nature's experiment—absence of vagina (uterus solidus)—in which not only has a normal cycle been determined[38] but among these cases instances of ovarian overfunction, as shown by the hormone graph, have been observed.

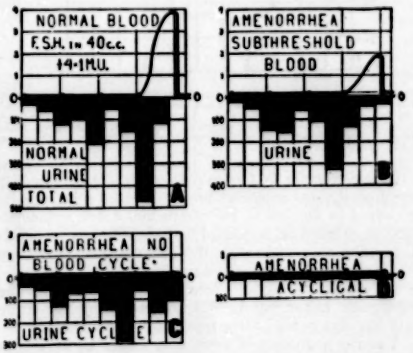



Chart 2.—Occurrence of estrogenic substance (F. S. H.) in the blood and urine of normal and amenorrheic women: *A*, normal; *B*, subthreshold; *C*, negative blood cycle, positive urine cycle; *D*, acyclic.

*Overfunction of the Ovaries.*—In the overfunctional group, excessive secretion, manifested by excessive excretion of estrogenic substance, is observed. The primary prepituitary cause can rarely be determined. These patients appear constitutionally normal except

35. Siebke, Harald: Ergebnisse von Mengenbestimmungen des Sexual hormons, Zentralbl. f. Gynäk. **54**: 1734 (July 12) 1930.
36. Fluhmann, C. F.: Anterior Pituitary Hormone in the Blood of Women with Ovarian Deficiency, J. A. M. A. **93**: 672 (Aug. 31) 1929.
37. Frank, R. T.: The Clinical Manifestations of Diseases of the Glands of Internal Secretion in Gynecological and Obstetrical Patients, Surg., Gynec. & Obst. **19**: 618, 1914.
38. Frank, R. T.; Goldberger, M. A., and Spielman, Frank: Present Endocrine Diagnosis and Therapy: A Critical Analysis Based on Hormone Studies in the Female, J. A. M. A. **103**: 393 (Aug. 11) 1934.
39. Fluhmann, C. F.: Anterior Pituitary Hormone in the Blood of Women, Endocrinology **15**: 177 (May-June) 1931.

for precocious puberty, puberty bleeding, menorrhagia or metrorrhagia. In this group the concentration of gonadotropic factor in the blood may be normal. The estrogenic factor in the blood is normal or reduced but is markedly increased in the urine. Instead of about 1,500 mouse units in thirty days, as much as from 4,000 to 10,000 mouse units may be excreted.[38] In excessive bleeding due to fibroids of the uterus or pelvic inflammatory disease there may be no increase in the amount of estrogenic substance excreted.[38]

In rare instances, overfunction is unaccompanied by excessive uterine bleeding. In so-called premenstrual tension, manifested by marked psychic and physical disturbances,[40] the excretion of estrogenic substance is markedly diminished, the estrogenic factor in the blood being increased to the level otherwise observed only in pregnancy (chart 3). This is interpreted as an elevation of the urinary threshold, manifested by diminished excretion.

In absence of the vagina, a congenital malformation, the ovaries may oversecrete, as evidenced by an excessive excretion of estrogenic substance in the urine.

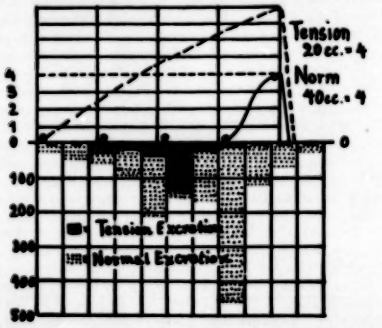



Chart 3.—Contrasting "premenstrual tension" and normal function. Normal estrogenic substance in blood shown by solid line; "tension" estrogenic substance in broken line. Tension shows increased estrogenic substance in blood. Decreased excretion totaling 300 mouse units (solid blocks) compared to that of normal female, which amounts to 1,500 mouse units (dotted area).

*Manifestations in Organic Diseases.*—As previously mentioned, no increase in estrogenic substance is observed in fibroids of the uterus and pelvic inflammation, even when accompanied by excessive uterine bleeding. The observations on the gonadotropic factor are incomplete and as yet afford no clue.

In precocious puberty due to ovarian tumor, the estrogenic factor has been recovered from the urine and has disappeared after removal of the growth.[41]

Varying quantities of estrogenic substance have been recovered from ovarian carcinoma, sarcoma, teratoma [41] and adrenal carcinoma.[42] Larger amounts of estrogenic principle are found in chorionepitheliomas irrespective of their source (uterine, ovarian, ectopic, testis), as will be shown later. In two cases of adrenal carcinoma with liver metastases (full autopsies including pituitary gland), the blood assays were normal but excessive quantities of estrogenic substance were excreted in the urine (57,000 mouse units in thirty days). The pregnancy tests were negative. Clinically, this was a typical syndrome of "basophilic adenoma" (Cushing). This is even more surprising because the ovaries in both cases were in an atrophic condition without corpora lutea. No such excessive excretion has been encountered by us except during pregnancy. Similar syndromes ascribable to adrenal hyperplasia did not show these changes.[42]

*Mental Diseases.*—The report of underfunction of the ovaries in schizophrenia [43] appears to have no significance, as underfunction has been observed in many unrelated diseases.

*Progestin.*—Progestin has not been demonstrated in the blood. I cannot accept Hisaw's observations [44] in which the relaxation of the pelvic ligaments of the female guinea-pig was employed as a test. The experiments of Kelly and Florence [45] likewise appear inconclusive. Their test consisted in observing inhibition of ovulation, the serum of pregnant women being used.

Loewe [46] has found 1 rabbit unit of progestin in 20 liters of the urine of cyclic women in the five day period preceding menstruation. In all the other five day periods of the cycle, none was demonstrable. He employed the Bouin and Ancel test.[13] Chart 4 shows the time relation of pituitary, estrogenic and progestin cycles.

### PREGNANCY

*Normal.*—Within the first week of impregnation, a marked increase of the gonadotropic factor occurs both in the blood and in the urine. On this dramatic change the pregnancy tests of Aschheim and Zondek [47] and of Friedman [48] are based (chart 5).

In the nonpregnant cyclic female, at most 25 rat units per liter of gonadotropic factor is found in the blood by means of the concentration test, and then only between the eighth and the tenth day of the cycle. In the pregnant female as much as from 10,000 to 20,000 rat units per liter has been found.[21] By improved methods recently we have recovered as much as 40,000 rat units per liter in blood and urine (unpublished).

In the urine of the nonpregnant female, 16 rat units per liter of gonad-stimulating principle can be recorded on the fourteenth day.[38] In pregnancy from 5,000 rat units per liter to 20,000 rat units per liter is excreted throughout pregnancy.[21] These high titers persist until shortly after labor (from forty-eight to ninety-six hours); the level then drops to the nonpregnant norm unless chorionic tissue remains adherent to the uterine wall.

The blood estrogenic factor remains unchanged until the eighth week of gestation. It then rises from 25 mouse units per liter to 50 mouse units per liter and persists at this higher level until labor occurs. Zondek [21] gives higher values; namely, from 200 to 300

40. Frank, R. T.: The Hormonal Causes of Premenstrual Tension, Arch. Neurol. & Psychiat. 26: 1053 (Nov.) 1931. Frank, Goldberger and Spielman.[39]

41. Frank, R. T.: Premature Sexual Development in Children Due to Malignant Ovarian Tumors, Am. J. Dis. Child. 42: 942 (April) 1932.

42. Frank, R. T.: A Suggested Test for Functional Cortical Adrenal Tumor, Proc. Soc. Exper. & Med. 31: 1204 (June) 1934.

43. Georgi, F., and Fels, E.: Follikel-hormonbestimmung im Harn schizophrener Frauen, Ztschr. f. d. ges. Neurol. u. Psychiat. 147: 746, 1933.

44. Hisaw, F. L.: The Corpus Luteum Hormone: II. Experimental Relaxation of the Pelvic Ligaments of the Guinea-Pig, Physiol. Zool. 2: 59 (Jan.) 1929.

45. Kelly, G. L., and Florence, L.: The Effect of Serum from Pregnant Women on the Oestrual Cycle of the Guinea-Pig, Surg., Gynec. & Obst. 50: 435 (Feb.) 1930.

46. Loewe, S., and Voss, H. E.: Nachweis des Vorkommens von Gelbkörperhormon im Frauenharn, Schweiz. med. Wchnschr. 64: 1049, 1934.

47. Aschheim, Selmar, and Zondek, Bernhard: Die Schwangerschaftsdiagnose aus dem Harn durch Nachweis des Hypophysenvorderlappenhormons, Klin. Wchnschr. 7: 1404 (July 22) 1928.

48. Friedman, M. H.: Mechanism of Ovulation in the Rabbit: II. Ovulation Produced by Injection of Urine from Pregnant Women, Am. J. Physiol. 9: 617 (Nov.) 1929.

mouse units per liter in the fourth month, and from 800 to 1,000 mouse units per liter at term. The urinary excretion of estrogenic substance increases gradually after the first week of pregnancy and by the later months may reach 20,000 mouse units per liter.[21]

This increase in estrogenic substance is not, however, sufficiently pathognomonic to permit of utilization as an early pregnancy test, although Mazer [49] has recommended it as a test (with 25 per cent error, the

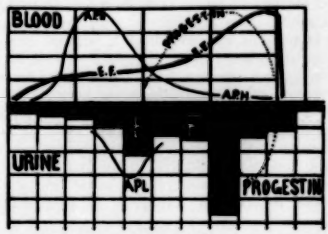



Chart 4.—Correlation of prepituitary, estrogenic and progestational cycles in blood and urine of the normal adult woman. Progestin has not been demonstrated in the blood. This part of the graph is hypothetic.

Abbreviations used in the charts are as follows: A. P. H., anterior pituitary gonadotropic hormone; A. P. L., anterior pituitary-like gonadotropic factor; A. P. F., gonadotropic factor (either A. P. H. or A. P. L.); E. F., estrogenic factor; R. U., rat unit; R. U. L., rat units per liter; M. U., mouse unit; M. U. L., mouse units per liter.

Aschheim-Zondek test in general showing not more than 2 per cent error).

*Pregnancy Abnormalities.*—Fetal death is marked by reduction in the blood estrogenic factor within twenty-four hours, the urinary pregnancy tests (for gonadotropic factor) persisting for days. We have used this change in the amount of estrogenic substance to recognize fetal death occurring after the eighth week.[50]

Retention of part or of the whole placenta after abortion or after premature or term labor causes persistence of the pregnancy reaction in blood and urine. The same applies to a placenta buried in the abdominal cavity after delivery of the fetus in abdominal pregnancy.[51]

In hydatid mole and chorionepithelioma the blood and urinary gonad stimulating factor reaches abnormally high levels. We have observed from 40,000 to 100,000 rat units per liter in the blood and urine. This is of clinical value, as Aschheim has pointed out.[52] Incomplete removal, recurrences and metastases due to chorionepithelioma also can thus be diagnosed by persistence or recurrence of positive pregnancy tests in high dilution.

In hyperemesis gravidarum, Siebke [53] was unable to detect any abnormality in concentration of estrogenic substance in the blood.

In eclampsia, Anselmino and Hoffmann [54] report an increase of anterior pituitary-like gonadotropic factor in the blood, as well as of the antidiuretic factor of the hypophysis.

*Fetus.*—Few observations are recorded. Brühl [55] found gonadotropic substance (reaction 1) in the cord blood and urine of the neonatus of both sexes, disappearing within two days after birth.

We have found no estrogenic factor in the fetal blood, though Loewe [56] as well as Brühl [55] have reported its presence in the new-born of both sexes. Estrogenic substance is also found in the urine, disappearing within four days post partum. It is present in the amniotic fluid in considerable concentration, the amniotic fluid of cattle being used as the source for a commercial preparation (amniotin).

*A Principle in the Female Having the Effects of the Testis Hormone.*—Traces of a bisexual "anlage," so manifest in certain vertebrates as the hen (left gonad, ovary; right, aplastic testis), may account for the constant presence in the urine of women of a substance having the effects of the testis hormone (Loewe,[57] Koch [58]). Bühler [59] has found from 6 to 7 capon units daily in a hirsute female of the masculine type. No observations of any significant value have been made on patients with arrhenoblastoma—masculinizing tumor of the ovary.

### MALES

*Hormones.*—The testis hormone is demonstrable by several tests: by the capon's comb growth [18] (capon unit), by the cytologic regeneration test [60] (mouse unit) and by the seminal vesicle and prostate cytologic test [61] (rat unit).

The capon test, though time consuming, is more specific than the rat or mouse test. According to Moore and Gallagher,[61] 1 rat unit equals 6 bird units.

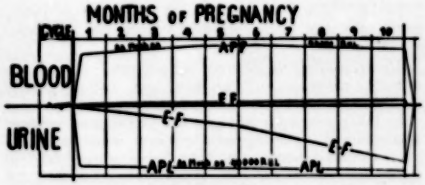



Chart 5.—Stupendous increase of hormone production and excretion produced by pregnancy. Not to scale—the cyclic readings are exaggerated, the pregnancy curve is reduced.

The gonadotropic hormone of the adenohypophysis, as in the female, in the male governs not only pre-

49. Mazer, Charles, and Hoffman, Jacob: The Three Hormone Tests for Early Pregnancy, J. A. M. A. **96**: 19 (Jan. 3) 1931.

50. Spielman, Frank; Goldberger, M. A., and Frank, R. T.: Hormone Diagnosis of the Viability of Pregnancy, J. A. M. A. **101**: 266 (July 22) 1933.

51. Ware, H. H., Jr., and Main, R. J.: An Abdominal Pregnancy Near Term, with Successful Termination, Retained Placenta and Observations on the Postpartum Excretion of Prolan, Am. J. Obst. & Gynec. **27**: 756 (May) 1934.

52. Aschheim, Selmar: Meine Schwangerschaftsdiagnose durch Hormonnachweis im Harn, Ztschr. f. ärztl. Fortbild. **26**: 5 (Jan. 1) 1929; Am. J. Obst. & Gynec. **19**: 335 (March) 1930.

53. Siebke, Harald: Ergebnisse von Mengenbestimmungen des Sexualhormons: 1. Mitteilung, Zentralbl. f. Gynäk. **53**: 2450 (Sept. 28) 1929.

54. Anselmino, K. J., and Hoffmann, F.: Arch. f. Gynäk. **144**: 506, 1931; Klin. Wchnschr. **10**: 1438 (Aug.) 1931.

55. Brühl, R.: Das Vorkommen von weiblichen Sexualhormon und Hypophysenvorderlappenhormon im Blute und Urin von Neugeborenen, Klin. Wchnschr. **8**: 1766 (Sept. 17) 1929.

56. Loewe, S., and Voss, E. H. V.: Eine plazentare Inkretsdrüse, spenderin örtlich wirksamen Hormons? VIII, Klin. Wchnschr. **8**: 1083 (June 11) 1929.

57. Loewe, S.; Voss, H. E., and Rothschild, E.: Ueber das Nebeneinander männlichen und weiblichen Sexualhormons, Biochem. Ztschr. **237**: 214, 1931.

58. Koch, F. C.: The Extraction, Distribution and Action of the Testicular Hormones, J. A. M. A. **96**: 937 (March 21) 1931.

59. Bühler, F.: Sexualhormon befunde im Harn von Männern verschiedenen Alters, Ztschr. f. d. ges. exper. Med. **66**: 650, 1933.

60. Loewe, S., and Voss, H. E.: Der Stand der Erfassung des männlichen Sexualhormons (Androkinins), Klin. Wchnschr. **9**: 481 (March 15) 1930.

61. Moore, C. R., and Gallagher, T. F.: The Threshold Relationship of Testis Hormone Indicators in Mammals: The Rat Unit, J. Pharmacol. & Exper. Therap. **40**: 341 (Nov.) 1930.

puberal and puberal development but also sex function throughout adult life (Smith and Engle,[62] Zondek[21]).

The same tests are employed for the gonadotropic factors as have been shown to be employed in the female. Estrogenic substance regularly is found in the urine and often in the blood of males. The Allen-Doisy test, previously referred to, is used.

*Normal Male.*—No cycle has been demonstrated in the male.

Prepituitary Hormone: No conclusive studies on the gonad stimulating factor in the blood and urine appear to be available. Katzman and Doisy[29] found that the adult male excreted about 4 to 19 mouse units daily of gonadotropic principle.

Testis Hormone: In 1928 Loewe[63] demonstrated the excretion of testis hormone in the urine. In 1930 Womack and Koch[64] and simultaneously Loewe[65] found the testis hormone in the blood of bulls; the former found 1 capon unit to 600 cc., the latter one-half mouse unit per liter. Bühler[59] found the daily excretion of testis hormone at various ages to be: from puberty to 20 years, 1 capon unit; from 20 to 30 years, 2 capon units; from 30 to 40 years, from 1 to 2 capon units; from 40 to 50 years, less than 1 capon unit, and 60 years and thereafter, 0.

Oesterreicher[66] demonstrated testis hormone in the urine of men up to the ninety-first year. Even in extreme age there was no increase of gonadotropic factor such as occurs after the menopause in women. Dingemanse and his co-workers[67] regularly found from 2 to 8 capon units of testis hormone per liter in the urine of males.

*Estrogenic Substance in the Male.*—Estrogenic factor has been found in the blood of normal males.[68] Of forty-seven males, Goldberger and I[69] demonstrated it in three. It is a constant constituent of male urine. Laqueur[67] estimates the concentration as from 10 to 200 mouse units per liter.

Brahn[70] noted no quantitative difference in estrogenic substance in the urine of normal and of homosexual males.

*Manifestations in Disease.*—Ferguson[71] found the urinary excretion of gonadotropic factor greatly increased in malignant tumors of the testicle.

In 117 cases, from 50 to 40,000 mouse units per liter was obtained. The highest titers were noted in embryonal adenocarcinoma; the next lower were found in embryonal carcinoma with lymphoid stroma and the least was found in seminoma (from 400 to 2,000 mouse units per liter). Metastases increase the excretion. Ferguson obtained only follicle ripening (reaction I).

In ten cases of seminoma, or other types of carcinoma, my associates and I found negative Friedman tests in all. In one case, after metastases developed, 1,000 rabbit units per liter (reaction III) was found in the urine.

Chorionepithelioma, arising from teratoma of the testis[72] or ectopic, in the lungs,[73] gives a strong pregnancy reaction by either the Aschheim-Zondek or the Friedman test.

In my own five cases (to be published), all of which showed metastases when first observed, from 1,000 to 10,000 rabbit units per liter of anterior pituitary-like gonadotropic factor (reaction III, corpora lutea) was found in the urine. In one instance as little as 0.1 cc. of urine gave a positive Friedman test. The amount of estrogenic substance in the urine varied from 25 to 250 mouse units per liter; the bloods all proved negative.

In a recent article, Geschickter and his co-workers[74] call attention to the high content of estrogenic substance in breast tumors and likewise imply that in gynecomastia of the male this abnormality must be ascribed to continuous increase of estrogenic or prepituitary-like factor.

## SUMMARY

A. The bisexual gonadotropic hormone, which activates the ovaries and testes, has been demonstrated in the blood and urine.

1. Before puberty, small amounts of this hormone are noted in the blood and urine of children and adolescents. The hormone brings about the trophic growth of the genitals.

2. At puberty, greater amounts are demonstrable, causing full activation of the sex glands.

3. In the healthy adult female a cyclic activity of the prepituitary is manifested by the cyclic blood and urinary curve obtained.

4. After impregnation and throughout pregnancy an increase of from 100 to 200 times the amount found in the nonpregnant woman is noted in the blood and urine.

5. At the menopause the prepituitary cycle ceases. In one group (50 per cent) a permanent increase of a gonadotropic hormone is noted in the blood and urine; in the other group none is demonstrable. No clinical differences in these individuals are observed.

6. Functional diseases of the female genital tract appear due to disturbances of the prepituitary cycle. With present methods this cannot always be demonstrated by blood and urine hormone studies.

7. In the male there is no evidence of a prepituitary cycle or of a senile condition corresponding to the menopause.

B. The female and male sex glands produce distinctive hormones, which have been recovered from the blood and urine. A substance apparently identical with the testis hormone is found in the female; estrogenic substance is found in the male.

C. In the normal, mature, fertile woman, two hormones are secreted by the ovary:

1. The estrogenic factor, which circulates each month in increasing concentration in the blood stream until the onset of menstruation, with a typical urinary curve of excretion.

62. Smith, P. E., and Engle, E. T.: Experimental Evidence Regarding the Rôle of the Anterior Pituitary in the Development and Regulation of the Genital System, Am. J. Anat. **40**: 159 (Nov. 15) 1927.

63. Loewe, S.; Voss, H. E.; Lange, F., and Wähner, A.: Sexual Hormonbefunde im männlichen Harn, Klin. Wchnschr. **7**: 1376 (July 15) 1928.

64. Womack, E. B., and Koch, F. C.: Proc. second Internat. Cong. Sex. Research, 1930.

65. Loewe, S.; Rothschild, F.; Rautenbusch, W., and Voss, H. E.: Androkinin (männliches Sexualhormon) in männlichen Blut, Klin. Wchnschr. **9**: 1407 (July 26) 1930.

66. Oesterreicher, W.: Die Ausscheidung von Folliculin und Prolan bei aelteren und alten Männern, Klin. Wchnschr. **12**: 1019 (July 14) 1934.

67. Dingemanse, E.; Freud, J.; Kober, S.; Laqueur, E.; Luchs, A., and Münch, A. W. P.: Zur Trennung des männlichen (Sexual-) Hormons vom weiblichen (Menformon), Biochem. Ztschr. **221**: 1, 1931.

68. Dohrn, M.: Ist der Allen-Doisy Test spezifische für weibliche Sexualhormon? Klin. Wchnschr. **6**: 359 (Feb. 19) 1927.

69. Frank, R. T., and Goldberger, M. A.: Significance of Female Sex Hormone Reaction in the Male Blood, Proc. Soc. Exper. Biol. & Med. **25**: 476 (March) 1928.

70. Brahn, B.: Haben homosexuelle Männer mehr Ovarialhormon in ihrem Harn als normale? Klin. Wchnschr. **10**: 504 (March) 14) 1931.

71. Ferguson, R. S.: Pathologic Physiology of Teratoma Testis, J. A. M. A. **101**: 1933 (Dec. 16) 1933.

72. Heidrich, L.; Fels, E., and Mathias, E.: Testikuläres Chorionepitheliom mit Gynäkomastie und mit einigen Schwangerschaftserscheinungen, Beitr. z. klin. Chir. **150**: 349.

73. Frank, R. T.: Unpublished data.

74. Geschickter, C. F.; Lewis, Dean, and Hartman, C. G.: Tumors of the Breast Related to the Oestrin Hormone, Am. J. Cancer **21**: 828 (Aug.) 1934.

2. The progestational factor, as yet not demonstrated in the blood but found cyclically distributed in the urine.

In pregnancy a higher level of the estrogenic factor is noted after the eighth week in the blood, and a disproportionately greater increase in the quantities excreted in the urine (placental effect).

D. Normal genital function in the female is dependent on synchronism of prepituitary, estrogenic and progestational blood cycles (with corresponding, characteristic excretory curves).

Functional diseases, as has been shown by blood and urinary studies, are due to either underfunction or overfunction of the ovaries. The disturbances of function in most instances are primarily referable to disturbances of the prepituitary cycle.

E. The testis hormone has been demonstrated in the blood and urine. No cycle has been found, and little correlation between male functional diseases and changes in the humoral balance as yet has been discovered. Organic disease in the male can produce changes in the excretion of gonadotropic principle.

10 East Eighty-Fifth Street.

## Council on Pharmacy and Chemistry

### ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association held its annual meeting at the headquarters building, 535 North Dearborn Street, Chicago, Friday and Saturday, March 22 and 23, 1935. Those present were:

| | |
|---|---|
| Dr. Stanhope Bayne-Jones | Dr. Reid Hunt |
| Dr. Kenneth D. Blackfan | Dr. Ernest E. Irons |
| Dr. J. Howard Brown | Dr. Paul Nicholas Leech |
| Dr. E. M. Bailey | Dr. G. W. McCoy |
| Dr. H. N. Cole | Dr. E. M. Nelson |
| Dr. Eugene F. Du Bois | Dr. W. W. Palmer |
| Dr. C. W. Edmunds | Dr. L. G. Rowntree |
| Dr. Morris Fishbein | Prof. W. E. Anderson of New Haven |

Dr. Reid Hunt was reelected chairman of the Council and Dr. Torald Sollmann was reelected vice chairman.

Among the many items discussed during the meeting, the following may be of interest both to physicians and to manufacturers:

*Shotgun Vitamin Therapy.*—The Council's clinical referee for vitamin preparations reviewed the present status of knowledge concerning the physiologic action of vitamin concentrates when administered in various combinations. It was brought out that there has been practically no experimental or clinical evidence which tends to show that the effect of vitamin concentrates are enhanced when these are given in combination. The best that could be expected from any given combination would be that each specific vitamin would produce its maximum effect independently of the other ingredients of the mixture; and there are seldom conditions in which multiple avitaminosis exists.

Evidence was reviewed which showed that the administration in combination of concentrates of vitamins, each of which is active independently, may so alter the effectiveness of each as to render it inadequate or to necessitate an increase in its dosage. In view of this, it was pointed out that the attempt to supply a sufficient amount of a single vitamin concentrate specifically indicated, when a mixture of vitamins is prescribed, would result in an excess of the remaining active agents. The possibility of harm from such excess must be kept in mind, and, even when no harm is done, such a combination may constitute an economic waste. The clinical referee stated that there are some indications that the antiscorbutic effect of orange juice is diminished by addition of some preparations containing vitamins A and D (thus indicating that the cevitamic acid content is impaired) with the result that scurvy has been observed in children taking such combinations.

It was brought out that there is an open field for the study of these questions; namely, incompatibilities, the possible impairment of vitamins when they are combined in mixtures containing a number of vitamins and extraneous material, and also the manner in which they are administered to the patient. Furthermore, it was pointed out that vitamins are rapidly entering the field of definite pharmaceuticals and may be considered as such—for instance, provitamin A (carotene), cevitamic acid (vitamin C) and the crystalline vitamin D type of preparation. A report on the status of vitamins is in the process of preparation.

The Council voted not to accept combined concentrates of vitamins A, B and D until there is adequate evidence of the value of giving these vitamins in combination. The further action of the Council in the matter of vitamin mixtures will await the development of further evidence for or against this practice.

*Use of Antioxidants in Fish Liver Oil Preparations.*—The Council considered the practice of adding antioxidant agents, such as hydroquinone, to cod liver oil or halibut liver oil to prevent deterioration of vitamin A. The use of antioxidants is designed to delay the start of oxidation of vitamin A in oils having a short "induction period"; that is, a short period before the fats begin rapidly to take up the oxygen of the air. Evidence is needed to show whether or not any by-product may be formed which might be toxic in the specific concentration of hydroquinone used. The possibility (which seems remote) of harm arising from continued use of hydroquinone must also be considered. Under ordinary conditions of use, however, there appears to be no necessity for the addition of an antioxidant to cod liver oil or halibut liver oil.

The Council voted that manufacturers of accepted products be informed that under conditions of ordinary usage there does not appear to be necessity for use of hydroquinone for the proper preservation of cod and halibut liver oil and that until more convincing evidence in favor of the practice is submitted, it may not be permitted.

*Differences in Antirachitic Effects of Fish Liver Oils of Different Species.*—The Council considered a review of the article of Bills (*Physiol. Rev.* **15**:1 [Jan.] 1935) showing, on the basis of comparative assays on rats and chickens, that there is an apparent difference between qualitative and quantitative relation of antirachitic effect of fish liver oils of different species. The Council postponed consideration of the bearing of the question on the fish liver oils for use by man. It was brought out that the question could be settled only by adequate comparative clinical tests.

*Lay Advertising of Vitamin Preparations.*—At its annual meeting in 1934, the Council decided not to countenance the advertising to the public of halibut liver oil, halibut liver oil with viosterol and viosterol in oil, because the high potency of these preparations renders them unsuitable for lay use without medical supervision. The Council sanctions proper advertising to the public of cod liver oil for prophylactic use. Attention was called to the fact that certain firms which market accepted halibut liver oils were not observing the Council's restriction as to lay advertising. After due consideration, the Council reaffirmed its attitude as to lay advertising of halibut liver oil and directed that attention of firms be called to any disregard of the Council's rules by advertising of halibut liver oils to the public.

*Permissible Claims for Vitamin A.*—The Council has defined its attitude toward the permissible claims for vitamin A by the statement in Hospital Practice for Interns, page 78, under "Oleum Morrhuae": "By virtue of its vitamin A content it promotes growth and, as indicated by experimental studies, may be an aid toward the establishment of resistance of the body

to infection in general, though it has not been shown to be specific in the prevention of colds, influenza and other such infections." There was recently brought to the Council's attention a summary of medical literature which, it was contended, contained evidence that vitamin A may be of value in reducing the incidence of the common cold. The Council's referee and a colleague reviewed this evidence and the referee presented the review to the Council. In the light of this review, it was agreed that there is not acceptable evidence to warrant the Council in countenancing the claim of anti-infective activity for vitamin A preparations. The Council voted that the permissible claims for vitamin A remain in statu quo, namely, as defined in the quotation from Hospital Practice for Interns given at the beginning of this paragraph. In addition, it was the understanding that recommendations for the administration of vitamin A to aid in building general resistance should be made only in cases in which the lack of resistance is due to deficiencies of this vitamin.

*Liver Preparations.*—The Council recently sent to manufacturers of accepted liver preparations new proposed standards for determining and expressing the potency of these products. These standards have been worked out in cooperation with the Pharmacopeial Revision Committee, which is considering the same subject. The Council's referee reported on the replies of some firms giving certain objections that had been raised. Prof. E. Fullerton Cook, Chairman of the U. S. P. Revision Committee, participated in the discussion of this topic. Professor Cook reported on the progress being made by the Pharmacopeial Committee. The Council postponed final action in order to consider the matter of various suggestions made for revision of the proposed standards.

*Antipneumococcus Serums.*—It has been brought to the attention of the Council that a pharmaceutical house is marketing an antipneumococcus serum with the claim that the product contains certain "heterophile units" and "neutralizing agents" representing advantages over ordinary products of this class. The firm has not presented the product for inclusion in New and Nonofficial Remedies.

After some discussion, the Council voted that the firm in question be invited to present the available evidence in order that the Council may consider it and report to the profession on the status of such a product in the light of the evidence for the claims made.

*Scarlet Fever Preparations in Bulk Packages.*—It has been brought to the attention of the Council that the marketing of scarlet fever preparations in bulk packages increases the likelihood of contamination and loss of potency. In the discussion of this question, it was pointed out that the Council has already indicated the hazards of using multiple dose containers and has repeated the warning in its report on the sterility of ampules (THE JOURNAL, Sept. 1, 1934, p. 678). The Council decided that further action in this matter should be left to the Scarlet Fever Committee, Inc., and the manufacturers concerned.

*Status of the Articles on Glandular Physiology and Therapy.*—The Council authorized the preparation of this series of articles at its annual meeting in 1934. It was reported to the Council that the series, which is currently appearing in THE JOURNAL, is attracting wide attention. The Council authorized preparation of an additional article dealing with the status of commercial glandular products.

*The Council's Rules.*—The Council discussed various proposed revisions and interpretations of the rules. It was decided that a compilation should be made of the various general affirmative actions or decisions of the Council and that these shall be published for the information of the manufacturers and others.

*Bacillus Acidophilus Preparations.*—The Council has continued its consideration of bacillus acidophilus preparations with the view to determining their proper status. In the discussion it was pointed out that there remain in the accepted list only four or five brands of bacillus acidophilus milk and one concentrate. Advertising has been restricted to very modest claims. The Council recently reaccepted most of the milk preparations for a period of three years. It was agreed that a period of approximately five years will be needed for definitive study of the worth of the milk preparations with special attention to dosage. It was pointed out that all the work up to this date has been done with milk preparations and that claims have been made for concentrates of bacillus acidophilus on the strength of these studies. Evidence is needed that is based on results with the concentrates themselves, especially since these do not seem to retain viability for as long a time even as the milk preparations. It should be pointed out that the reduction in the number of accepted products has been caused mainly by failure of the omitted products to show, as a result of bacteriologic examination, the number of viable organisms per unit volume prescribed by the Council for accepted products.

*Use of the Term "Obstetrical" on Labels of Pituitary Liquid.*—Attention was called to the practice of certain firms marketing accepted brands of solution of pituitary of including the bracketed term "Obstetrical" in the name.

The Council directed that the name "Pituitary Solution (Obstetrical)" be not recognized but that manufacturers of accepted brands of pituitary solution be informed that the Council will not object to the use of the phrase "for obstetrical use" underneath the name or elsewhere on the ampule label.

*Commercial Reprints of Council Reports.*—The Council has at times considered the desirability of extending to commercial firms the privilege of using Council reports in the promotion of their accepted products. It was decided that the Council would not grant permission for such use of its reports.

*Sterility of Catgut Sutures.*—The Council considered the question of sterility of catgut sutures. After considerable discussion, it was agreed that the Council should undertake a limited examination of samples of catgut on the market. The Council therefore voted to bring to the attention of the Board of Trustees the necessity for examination of catgut and to ask the Board for authorization of such an investigation under the direction of the Council's Committee on Serums and Vaccines. The Board was asked to consider the relationship between the work of the Council's committee and that of the Committee on Catgut Standards previously appointed at the instigation of the Section on Surgery of the Scientific Assembly. [The Board of Trustees has since made an appropriation and has given the Council the desired authorization.]

*Advertising for Aminophyllin.*—The Council discussed the difficulty in determining the exact clinical status of Aminophyllin. It felt that some advertising claims for the product carried overoptimistic implications.

*Dinitrophenol.*—The Council has already issued a preliminary report on this drug (THE JOURNAL, July 15, 1933, p. 210). It is still considering the drug but is not yet prepared to accept it for inclusion in New and Nonofficial Remedies, its therapeutic indications and limitations not being established although its toxicity is definitely understood. The Council decided that a progress report on the drug is necessary and instructed the referee to submit such a report in the near future with view to its publication.

*Fantastic Claims.*—The Council definitely disapproved the use of fantastic statements and slogans offered in the advertising of certain accepted products. The Council directed that a general decision on similar vague health claims be prepared for adoption and later publication.

*Reports of Committees.*—The Committees on Useful Drugs, New and Nonofficial Remedies, Hospital Practice for Interns, and Epitome of the Pharmacopeia and National Formulary reported that revision of these texts will be necessary in the coming year to bring them into harmony with the new Pharmacopeia and the new National Formulary. The committees asked for suggestions as to additional revisions which Council members might deem necessary.

The Committee on Therapeutic Research reported that it would continue to follow the same policy as formerly in making grants in aid of research; namely, a sum generally between one hundred and two hundred fifty dollars for the purchase of materials or special apparatus.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**IPRAL SODIUM.** — Sodium ethylisopropylbarbiturate. — $NaC_9H_{11}C_4H_2CONHC.O:NCO$. The sodium salt of ethylisopropylmalonyl urea.

*Actions and Uses.*—Ipral sodium has the therapeutic properties of barbituric acid. It is soluble in water and is absorbed promptly. It is claimed that it is excreted rapidly, but some action commonly persists for twenty-four hours. In therapeutic doses it affects the higher cerebral centers almost exclusively, and such doses exert no perceptible effect on the heart or circulation directly.

Ipral sodium is used as a hypnotic to combat restlessness, irritability and sleeplessness. It is claimed that tolerance to ipral sodium is not developed readily, and that its action is persistent.

*Dosage.*—From 0.12 to 0.25 Gm. (2 to 4 grains) followed by a cupful of hot water, tea or milk.

Manufactured by E. R. Squibb & Sons, New York. U. S. patents 1,255,951 (Feb. 12, 1918; expires 1935); and 1,576,014 (March 9, 1926; expires 1943). U. S. trademark 208,813.

*Ipral Sodium Tablets, 4 grains.*

*Caution:* Aqueous solutions of ipral sodium are not stable but decompose on standing; on boiling, a precipitation occurs.

Ipral sodium is a white hydroscopic powder, soluble in water, slightly soluble in alcohol and practically insoluble in ether and chloroform. An aqueous solution of ipral sodium has an alkaline reaction to litmus.

Dissolve about 0.5 Gm. of ipral sodium in 100 cc. of water, add an excess of diluted hydrochloric acid, collect the resultant ethylisopropyl barbituric acid on a filter, wash and dry at 100 C.: it melts at 200-205 C. Incinerate about 1 Gm. of ipral sodium: the residue responds to tests for sodium carbonate. Boil about 0.5 Gm. of ipral sodium with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with evolution of ammonia. Dissolve about 0.3 Gm. of ipral sodium in 10 cc. of water and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in an excess of ammonia; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in an excess of ammonia.

Dissolve about 0.5 Gm. of ipral sodium in 50 cc. of water, add 5 cc. of diluted nitric acid and filter through paper: separate portions of 10 cc. each of the filtrate yield no opalescence on the addition of 1 cc. of silver nitrate solution *(chloride)*; no turbidity on the addition of 1 cc. of barium nitrate solution *(sulphate)*. To about 0.2 Gm. of ipral sodium in 25 cc. of water, add 1 cc. of diluted hydrochloric acid, filter through paper: the filtrate yields no coloration or precipitation on saturation with hydrogen sulphide *(salts of heavy metals)*. Add about 0.1 Gm. of ipral sodium to 1 cc. of sulphuric acid: the solution is colorless *(readily carbonizable substances)*.

Transfer about 1 Gm. of ipral sodium, accurately weighed, to a glass stoppered cylinder, add 50 cc. of anhydrous ether, stopper and shake for ten minutes; decant the supernatant liquid through filter paper and repeat twice, using 25 cc. and 15 cc. portions, respectively, of ether, utilizing the same filter; evaporate the combined filtrates to dryness in a tared beaker and dry to constant weight at 90 C.: the residue does not exceed 0.2 per cent *(uncombined ethylisopropyl barbituric acid)*.

Dry about 1 Gm. of ipral sodium, accurately weighed, to constant weight at 100 C.: the loss does not exceed 2 per cent. Transfer about 0.5 Gm. of ipral sodium, accurately weighed, to a suitable Squibb separatory funnel, add 50 cc. of water, followed by addition of 10 cc. of diluted hydrochloric acid; extract with eight successive portions of ether of 25 cc. each, evaporate the combined ethereal extractions to dryness in a stream of warm air and dry to constant weight at 100 C.: the amount of ethylisopropyl barbituric acid corresponds to not less than 88.5 per cent nor more than 90.5 per cent, calculated to the dried substance. Transfer the acidulated aqueous portion from the foregoing immiscible solvent extraction to a tared platinum dish and evaporate to dryness on a steam bath; to the residue obtained, add 5 cc. of sulphuric acid; heat *cautiously* until the excess of sulphuric acid has been volatilized; repeat twice, using portions of 1 cc. each of sulphuric acid each time; add about 0.5 Gm. of ammonium carbonate; ignite to constant weight, and weigh as sodium sulphate: the percentage of sodium coresponds to not less than 9.5 per cent nor more than 11.5 per cent when calculated to the dried substance.

**DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED)** (See New and Nonofficial Remedies, 1935, p. 394).

Wm. S. Merrell Co., Cincinnati.

*Diphtheria Toxoid, Alum Precipitated (Refined)* (See THE JOURNAL, Dec. 22, 1934, p. 1947).—Also marketed in packages of ten 1 cc. vials (ten immunizations).

**METYCAINE** (See New and Nonofficial Remedies, 1934, p. 54).

The following additional dosage form has been accepted:

*Metycaine Tablets, ½ grain.*

## *Committee on Foods*

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING AMENDED RULE.

RAYMOND HERTWIG, Secretary.

### VIOLATION OF RULES

Acceptance of a product may be withdrawn if the spirit or meaning of these rules should be violated.

No food product or class of food products, or advertising therefor, will be accepted, or if accepted will be retained, if in the opinion of the Committee such acceptance is likely to be construed as an acceptance or approval of any other products or activities of a firm, when such other products or activities of such firm are in conflict with the policies of the American Medical Association as set forth in the rules of the Committee on Foods, or those of the Council on Pharmacy and Chemistry or of the Council on Physical Therapy.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

### WARRANTY SIEVED TOMATOES

*Manufacturer.* — The Nielsen Corporation, Ltd., Oakland, Calif.

*Description.*—Sieved tomatoes prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt.

*Manufacture.*—Fresh tomatoes are washed, sorted, trimmed of all objectionable material, again washed, crushed, heated to the boiling point, and delivered to a pulping machine and finisher, where the seeds, skins and cores are removed. The pulp is concentrated in a vacuum pan at a temperature of 63 C. to the desired consistency, filled into cans and processed as described for Warranty Sieved Spinach (THE JOURNAL, Feb. 2, 1935, p. 399).

*Analysis* (submitted by manufacturer).—

| | per cent |
|---|---|
| Moisture | 91.6 |
| Total solids | 8.4 |
| Ash | 0.7 |
| Sodium chloride | 0.1 |
| Fat (ether extract) | 0.1 |
| Protein (N × 6.25) | 1.2 |
| Reducing sugars as invert sugar | 4.7 |
| Sucrose | 0.1 |
| Crude fiber | 0.3 |
| Carbohydrates other than crude fiber (by difference) | 5.6 |
| Titratable acidity as citric acid | 0.5 |

*Calories.*—0.3 per gram; 9 per ounce.

*Vitamins.*—The method of preparation and processing insures the retention in high degree of the natural vitamin values.

*Claims of Manufacturer.* — Specially intended for infants, children and convalescents, and for special smooth diets. Only warming is required for serving.

### COFFEE FLAVOR SPARKLE GELATIN DESSERT

*Manufacturer.*—Quaker Maid Company, New York.

*Description.*—Gelatin dessert powder containing sucrose, gelatin, coffee extract and sodium chloride.

*Manufacture.*—The ingredients in formula proportions are automatically mixed, dried, and packed in cartons.

*Analysis* (submitted by manufacturer).—

| | per cent |
|---|---|
| Moisture | 1.3 |
| Total ash | 0.6 |
| Protein (N × 5.55) | 11.9 |
| Sucrose | 82.2 |
| Carbohydrates and coffee solids (by difference) | 86.2 |

*Calories.*—3.7 per gram; 105 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 1, 1935

## DEFINITION OF ALLERGIC DISEASES

The development of the term "allergy" and the rapid increase in knowledge concerning this state have resulted in widespread loose usage. An allergic state has thus been proposed as the explanatory mechanism in a vast number of diseases both common and rare. Perhaps it is time now to examine the definition and determine its present status.

Rackemann [1] quotes Pirquet as defining allergy as a changed reaction capacity that the human or animal organism gains through recovery from disease or through treatment with foreign substances. Later Rackemann states that "allergy is the capacity to react to many substances which are entirely innocuous to normal individuals." Tuberculosis, for example, could scarcely be classed as an allergic disease under this definition. In discussing the same subject, Vaughan [2] says: "The word allergy is derived from the Greek and means altered energy or altered activity, or altered reactivity. The allergic individual reacts differently to certain stimuli with which he comes in contact. What is harmless for the nonallergic person causes severe symptoms in the allergic patient." This definition allows considerable leeway in interpretation. Although arising largely from a study of anaphylactic phenomena in animals, the conception of allergy as altered reactivity of the body might be stretched to cover almost any deviation from functional normality. While perhaps strictly permissible, this broad interpretation departs widely from the meaning of the term at the time of its introduction.

From time to time there have been investigators who uttered feeble protests at the all embracing progress of allergy, but these have been engulfed by animal experiments showing that almost any type of inflammatory lesion can be produced by protein sensitization. Suggestive evidence such as Key's [3] experiments, which showed similar inflammatory lesions in animals from nonprotein chemicals, have been met by postulating a combination of these chemicals with human blood protein to make a new protein that behaves like a foreign one.[4] Although possibly true, the burden of proof of the latter view necessarily rests with those who propose it.

Aschoff [5] has recently lent his weight toward a relatively narrow definition of allergic diseases. He believes that allergy should be restricted to disorders that appear in attacks on the basis of a true tissue hypersensitivity. The transference of observations on artificial allergy in animals to human subjects he deplores. This process has gone so far that allergic manifestations occurring in the course of infectious diseases are interpreted as meaning that the disease is itself allergic. A disturbing confusion has thus resulted in that etiologically different even if symptomatologically similar disturbances are designated as allergic because certain local histologic changes resemble the allergic inflammations that are produced artificially in animals. Aschoff objects to such disregard of specific pathogenic and pathologic laws. The tendency to assign the rheumatic state, for example, to a common allergenic agent is, he believes, a step backward. The grouping together of etiologically different diseases merely because of similar symptomatology or supposed common protein sensitivity is essentially unsound. Only a sharp etiologic differentiation makes effective causal therapy possible.

Whatever the ultimate outcome, it must be granted that much present use of the term "allergy" does not lend itself to clear thinking. The convenience of its use to explain processes not well understood recalls earlier use of such expressions as "ptomaine poisoning" or "intestinal flu." In the main it would probably be well to restrict the term to those disorders of sudden onset in which a specific tissue hypersensitivity is demonstrable. Pending the results of further investigation, allergy should be used sparingly in relation to the majority of inflammatory diseases.

1. Rackemann, F. M.: Clinical Allergy, New York, Macmillan Company, 1931.
2. Vaughan, W. T.: Allergy and Applied Immunology, St. Louis, C. V. Mosby Company, 1934.
3. Key, J. A.: The Production of Chronic Arthritis by the Injection of Weak Acids, Alkalis, Distilled Water and Salt Solution into Joints, J. Bone & Joint Surg. 15:67 (Jan.) 1933.
4. Vaughan: Allergy and Applied Immunology, p. 76.
5. Aschoff, Ludwig: Ueber den Begriff der allergischen Krankheiten, Med. Klin. 31:1 (Jan. 4) 1935.

## HUMAN STERILIZATION

Legislation affecting human sterilization has been or is being considered in the 1935 sessions of ten state legislatures. Already such legislation is presumably effective in many other states. The medical profession is frequently called on to present its views on the present status of knowledge of human inheritance and the indications for and limitations of human sterilization.

The inheritability of human structural and mental characteristics is not as easily determined as is that of animals, since the latter can usually be studied according to known laws of genetics. There is a body of opinion which believes that human inheritance cannot be determined. There are others who maintain that

much positive evidence is obtainable. Although at present the public interest is focused on mental defects, some of the best evidence of human inheritance lies in the field of developmental structural abnormalities. Some such physical defects appear to be pure dominant, some recessive and some sex linked. The same defect may be, for example, dominant in one family and sex linked in another. The mechanism in hemophilia, for example, is incontrovertible. Recently Macklin [1] has said that developmental defects, like developmental normalities, are hereditary.

There are several factors that make mental defects more difficult to follow. Mental defect grades from normal to abnormal without any sharp dividing line. Furthermore, moderate mental deficiency in families is often overlooked in the pedigree method of studying inheritance. In spite of these difficulties, data are obtainable that indicate beyond reasonable doubt the inheritance of certain mental characteristics. Macklin has pointed out the advantages and disadvantages of methods of study of human genetics. For example, the incidence of consanguineous marriages among the parents of persons showing a supposedly inherited trait may give information not only as to the inheritability but also as to the type of heredity exemplified in the trait in question. Similarly the same defect or disease occurring in identical twins in excess of the expected ratio for the general population would indicate a hereditary basis. Finally, Macklin believes that much important information is obtainable from a study of the frequency in related as compared with that in unrelated persons. Somewhat similar conclusions are pointed out by Roberts,[2] by the Brock [3] report in Great Britain, and by others.

There is sufficient evidence of the inheritability of certain structural and mental defects, but control measures should be definitely limited to those defects whose essential inheritability and mode of transmission are known. The established genetic foundation must not be exceeded. Although compulsion serves as the basis for most state legal enactments in this country, mandatory action has been criticized by Myerson [4] and in the Brock report in view of the inherent danger in sterilization laws that might become punitive. Voluntary sterilization, limited to individuals possessing strong potentialities for perpetuating individually or socially serious physical or mental traits, is a rational procedure. The Brock report, however, raises at least two objections to a scheme for voluntary sterilization. It is argued that, if really voluntary, consent will not be obtained; also that defectives are so suggestible that they will be too readily persuaded and hence their consent is really meaningless. From a practical standpoint, the Brock committee does not consider either objection valid, for, with reasonable eugenic knowledge and intellectual honesty among those responsible for proposing sterilization, these objections should be immaterial.

1. Macklin, Madge T.: The Rôle of Heredity in Disease, Medicine **14**:1 (Feb.) 1935.
2. Roberts, J. A. F.: Heredity and Mental Deficiency, Brit. M. J. **1**:413 (March 2) 1935.
3. Report of the Departmental Committee on Sterilization, H. M. Stationery Office, 1934.
4. Myerson, Abraham: A Critique of Proposed "Ideal" Sterilization Legislation, Arch. Neurol. & Psychiat. **33**:453 (March) 1935.

## "BAIT ADVERTISING" UNLAWFUL

The Constitution of the United States does not grant to any physician or dentist the right to use so-called bait advertising to lure patients into his office and to trap them into agreements which otherwise they would not make. It is no defense to say that the advertising is truthful or that in a particular case it was not resorted to for an improper purpose. If any legislature forbids through legislation all such advertising by members of any particular profession without regard to its truthfulness or purpose in particular cases, it is not for the courts to challenge that judgment. This is the gist of the decision recently rendered by the United States Supreme Court in *Semler* v. *Oregon State Board of Dental Examiners* (55 Sup. Ct. 570).

The case arose under a statute enacted by the Oregon legislature in 1933 (Oregon Laws, 1933, chapter 166), enlarging the list of causes for which licenses to practice dentistry might be revoked. It authorized the revocation of such a license if the licentiate should be guilty of "advertising professional superiority or the performance of professional services in a superior manner; advertising prices for professional service; advertising by means of large display, glaring light signs, or containing as a part thereof the representation of a tooth, teeth, bridge work or any portion of the human head; employing or making use of advertising solicitors or free publicity press agents; or advertising any free dental work, or free examination; or advertising to guarantee any dental service, or to perform any dental operation painlessly." Semler, a dentist practicing in Portland, Ore., sought an injunction to prevent the enforcement of the act. His petition having been denied by the circuit court and by the Supreme Court of Oregon, he appealed to the Supreme Court of the United States. He contended that the statute was unconstitutional in that it denied due process of law and equal protection of the law and impaired the obligation of contracts. The United States Supreme Court, however, rejected this contention, saying as it did so:

> We do not doubt the authority of the state to estimate the baleful effects of such methods and to put a stop to them. The legislature was not dealing with traders in commodities, but with the vital interest of public health, and with a profession treating bodily ills and demanding different standards of conduct from those which are traditional in the competition of the market place. The community is concerned with the maintenance of professional standards which will insure not only competency in individual practitioners, but protection against those who would prey upon a public peculiarly susceptible to imposition through alluring promises of physical relief. And the community is concerned in providing safeguards not only against deception, but against practices which would tend to demoralize the profession by forcing its members into an

unseemly rivalry which would enlarge the opportunities of the least scrupulous. What is generally called the "ethics" of the profession is but the consensus of expert opinion as to the necessity of such standards.

It is no answer to say, as regards appellant's claim of right to advertise his "professional superiority" or his "performance of professional services in a superior manner," that he is telling the truth. In framing its policy the legislature was not bound to provide for determinations of the relative proficiency of particular practitioners. The legislature was entitled to consider the general effects of the practices which it described, and if these effects were injurious in facilitating unwarranted and misleading claims, to counteract them by a general rule even though in particular instances there might be no actual deception or misstatement.

While this decision has reference only to the Oregon law, it will protect from attack on the basis of supposed invalidity under the federal constitution the many similar laws [1] for the regulation of advertising by dentists that have been enacted during the last few years. Indeed, the dental profession seems to have concentrated its efforts toward modernizing the dental practice acts of many states, and in doing so it has incorporated in them provisions looking toward the better regulation of dental advertising. The success of their efforts, which, so far as advertising is concerned, seems to be assured by the decision of the United States Supreme Court, should encourage the medical profession to seek similar legislation where present advertising privileges are abused.

1. During 1933, 1934 and to date in 1935, the following states have adopted amendments to their laws regulating the practice of dentistry, substantially similar with respect to advertising prohibitions to the Oregon law:

1933:
Delaware, Laws, 1933, c. 240.
Illinois, Laws, 1933, p. 708.
Maryland, Laws, 1933, c. 564.
Wisconsin, Laws, 1933, c. 189.

1934:
Massachusetts, Laws, 1934, c. 281.
Rhode Island, Laws, 1934, c. —, approved May 4, introduced as H. 835.

1935:
California, Laws, 1935, c. 147.
Colorado, Laws, 1935, c. —, approved March 8, introduced as S. 329.
Idaho, Laws, 1935, c. —, approved March 5, introduced as H. 85.
Indiana, Laws, 1935, c. —, approved February 26, introduced as H. 218.
Iowa, Laws, 1935, c. —, approved May 6, introduced as H. 203.
Maine, Laws, 1935, c. 97.
Montana, Laws, 1935, c. —, approved February 23, introduced as H. 87.
Nebraska, Laws, 1935, c. —, approved May 13, introduced as S. 100.
New Hampshire, Laws, 1935, c. —, approved February 26, introduced as H. 134.
Tennessee, Laws, 1935, c. 126.
Utah, Laws, 1935, c. —, approved March 22, introduced as S. 9.

The Indiana amendment appears to impose even more stringent prohibitions with respect to advertising than does the Oregon law.

1. Communication from the Session on Forensic Medicine of the Section on Miscellaneous Topics, Minutes of the House of Delegates, J. A. M. A. **102**: 2205 (June 30) 1934; Section on Miscellaneous Topics, Session on Forensic Medicine, Minutes of the Sections, ibid. **105**: 46 (July 7) 1934.

## *Current Comment*

### BLOOD GROUPING TESTS AND THE LAW

At the meeting of the Session on Forensic Medicine of the Section on Miscellaneous Topics at the annual session of the American Medical Association in Cleveland last June, a motion was passed [1] to "organize a committee for the purpose of acquainting the suitable authorities in the legal profession with the existence and reliability of the blood grouping tests, so that statutes may be enacted authorizing courts to order individuals to submit to blood grouping tests when they are required, in those jurisdictions in which blood tests are not obligatory at present." The first step toward this goal was taken recently in New York State, when blood grouping bills that had passed the legislature were signed by the governor.[2] Only a short time previously a case of disputed paternity had come before the supreme court of that state, in which blood tests were ordered by Justice Meier Steinbrink at the request of the defendant. The plaintiff refused to submit to the tests and, on appeal to the appellate division of the supreme court, Justice Steinbrink's decision was reversed, since it was held that there was no statutory authority for such an order.[3] However, the new legislation will give this authority to judges trying future cases in New York State. A brief summary of the major forensic applications of blood grouping may be of interest at this time.[4] In illegitimacy proceedings, the tests can be used to exclude but not to prove paternity. Thus, if the mother belongs to group A, the child to group B and the supposed father to group A, the accused man could not be the father of the child, since the child possesses an agglutinogen B which neither of the supposed parents has. On the other hand, if the accused man is found to belong to group B, this would not prove him to be the father of the group B child, since 15 per cent of all men belong to this group and there is a possibility of coincidence. With the aid of the four classic Landsteiner blood groups, one sixth of all falsely accused men can be exonerated. The agglutinogens M and N, discovered by Landsteiner and Levine [5] in 1928, have doubled the number of cases in which an exclusion can be obtained, so that now one out of three falsely accused men can be exonerated. In criminal cases, the blood grouping tests are useful for purposes of identification. They are of great value in such cases, since at the present time as many as eighteen distinct types of human blood can readily be differentiated. For example, suppose that a criminal is wounded in a chase by the police but escapes. Some of his blood left at the scene of the crime is found to belong to group A, type N. All suspects except those belonging to this type can immediately be eliminated, and thus much time and expense can be saved. The value of keeping records of each criminal's blood group as well as his finger prints should therefore be evident. Incidentally, though clever surgeons with shady reputations have devised methods of altering the finger prints of criminals, it is impossible to change the blood group. The tests for M and N and the tests on old blood stains are of an exceedingly delicate nature and should be entrusted only to properly qualified individuals. This is important, since errors in diagnosis might result in grave injustice.

2. Time **25**: 66 (April 1) 1935.

3. Beuschel v. Manowitz (N. Y.) 271 N. Y. S. 277; 272 N. Y. S. 165; abstr. J. A. M. A. **104**: 344 (Jan. 26) 1935.

4. A thorough and reliable compilation of all that is known concerning the individual differences in the blood, and their applications, has just been published (Wiener, A. S.: Blood Groups and Blood Transfusion, Springfield, Ill., Charles C. Thomas, 1935). Landsteiner, Karl: Forensic Application of Serologic Individuality Tests, J. A. M. A. **102**: 1041 (Oct. 6) 1934.

5. Landsteiner, Karl, and Levine, Philip: On Individual Differences in Human Blood, J. Exper. Med. **47**: 757 (May) 1928; On the Inheritance of Agglutinogens of Human Blood Demonstrable by Immune Agglutinins, J. Exper. Med. **48**: 731 (Nov.) 1928.

# Association News

## THE ATLANTIC CITY SESSION

### Scientific Exhibit

The attention of those attending the Atlantic City session is called to the fact that the Scientific Exhibit is not open evenings. The hours on Monday, June 10, will be from 12 noon until 6 p. m. and on other days from 8:30 a. m. until 6 p. m., except Friday, June 14, when the Scientific Exhibit closes at 12 noon.

Admission to the Scientific Exhibit is limited to individuals wearing Fellowship badges or other badges of the convention and to guests to whom special cards of admission have been issued. The public is *not* admitted to the Scientific Exhibit.

### Fraternity and Club Luncheons

Theta Kappa Psi Medical Fraternity will hold a luncheon, Wednesday, June 12, at 12:30 p. m., at the Madison Hotel, Atlantic City.

The Phi Rho Sigma Luncheon will be held Wednesday, June 12, at the Ambassador Hotel, in Atlantic City, 12:30 p. m.

Details on the Phi Beta Pi Medical Fraternity luncheon may be obtained from the Phi Beta Pi booth at the Atlantic City session.

### Meeting of the American Radium Society

The American Radium Society will hold its annual meeting in the Vernon Room of Haddon Hall, June 10-11. Symposiums on radium packs, biopsies and breast cancer will form a large part of the program. The session, Tuesday afternoon, however, will be devoted to miscellaneous problems.

### Radio Broadcasts from Atlantic City and Philadelphia

Through the courtesy of the National Broadcasting Company and the Columbia Broadcasting System the American Medical Association will broadcast health talks to the public in connection with the annual meeting at Atlantic City, June 10 to 14.

The talks over a network of the National Broadcasting Company will originate in the studios of Station WFIL, at Philadelphia, according to the following schedule (eastern daylight saving time):

June 11, 5-5:15 p. m. The Polio Situation, by Dr. J. P. Leake.
June 12. Hour to be announced. News Features from the Convention, W. W. Bauer, M.D.
June 14, 5-5:30 p. m. Medicine in North America:
Nutrition and the Health of the Race, by Dr. James S. McLester.
Truth in Therapeutics, by Dr. Jonathan C. Meakins.
Speakers to be introduced by Dr. Morris Fishbein.

The talks over a network of the Columbia Broadcasting System will originate in the studios of Station WPG, Atlantic City, according to the following schedule:

June 10, 5-5:15 p. m. Sidelights on Sleep, by Dr. Glenville Giddings Jr.
June 14, 3:15-3:30 p. m. Problems of the Hard of Hearing, by Dr. Austin A. Hayden.

## MEDICAL BROADCASTS

### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 central standard time). The next three broadcasts will be as follows:

June 6. Wound Infections, W. W. Bauer, M.D.
June 13. Summer Camps, C. C. Bean.
June 20. Burns, W. W. Bauer, M.D.

### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15 Chicago daylight saving time (3 o'clock central standard time). The next three broadcasts will be as follows:

June 4. The Crippled Child, W. W. Bauer, M.D.
June 11. See announcement of broadcasts from annual session.
June 18. Only One Pair of Eyes, W. W. Bauer, M.D.

# Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ALABAMA

**State Medical Election.**—Dr. Charles A. Thigpen, Montgomery, was chosen president of the Medical Association of Alabama at its annual meeting, April 18. Dr. Charles P. Hayes, Elba, was named vice president of the southeastern division. Montgomery was designated as the place for the next annual meeting, April 21-23, 1936. At this session Dr. James N. Baker, Montgomery, was unanimously reelected state health officer for a second five year term, and a resolution was adopted urging the legislature to increase the state health officer's salary to a sum "commensurate with the office."

**Changes in Health Officers.**—Dr. Leslie G. Cole has been appointed in charge of the Bullock County Health Department, succeeding Dr. Ernest G. Moore, Union Springs, who recently resigned to engage in private practice in Tallassee. Dr. Marion L. Shaddix, Phenix City, has been named health officer of Russell County. Dr. Lee Weathington, Boaz, has been appointed health officer of Marshall County. Dr. Hugh C. Nickson has recently been appointed health officer of Chilton County, at the head of a new full time health unit. Dr. Myrtus R. McWhorter, Woodland, has been appointed full time health officer of Randolph County, with headquarters in Wedowee.

## ARKANSAS

**Personal.**—Dr. James D. Mooney has been elected mayor of Coal Hill.——Dr. James T. Powell has been appointed health officer of Gravette and Dr. J. Pell Baker of West Helena.

**Society News.**—Speakers before the Pulaski County Medical Society, Little Rock, recently, were Drs. Louis Hamman, Baltimore, and Douglas Quick, New York, on heart pains and irradiation of cancer, respectively.——The Physicians' Business and Credit Rating Bureau of Jonesboro has been organized, with Dr. Ralph M. Sloan as president.——At a meeting of the Academy of Medicine of Hot Springs National Park, April 2, Drs. Neil D. Buie and Thomas G. Glass, Marlin, Texas, discussed hypertension.

## CALIFORNIA

**Dr. Wilbur Made President of Motion Picture Council.**—Dr. Ray Lyman Wilbur, president of Stanford University and former Secretary of the Interior, has been elected president of the Motion Picture Research Council. This council was formed in 1928 to promote studies of the social value of motion pictures and to apply its conclusions to improving the movies.

**Changes in Health Officers.**—The following physicians have recently been appointed health officers:

Oscar J. Hansen, Redding, of Shasta County, succeeding Dr. Benjamin F. Saylor.
Oran Newton, Taft, to succeed the late Dr. Perryman F. Page Jr.
William T. Heffernan of Calexico, to succeed Dr. Frederick C. Gregg.
John A. Wallace, of Calipatria, to succeed Dr. John H. Hutton.

**Society News.**—The urologic section of the Los Angeles County Medical Society arranged a symposium on renal infections, exclusive of tuberculosis, for the meeting April 18; it was presented by Drs. Hermon C. Bumpus, Pasadena, William H. Leake, Arthur Elmer Belt, George F. Schenck, Verne R. Mason and Robert V. Day.——Drs. Pierre P. Viole and Carl W. Rand addressed a joint meeting of the Los Angeles Society of Ophthalmology and Otolaryngology and the Los Angeles Society for Neurology and Psychiatry, April 25, on "Clinical and Postmortem Conclusions Concerning the Intracranial Complications of Acute and Chronic Paranasal Sinus Disease" and "Visual Field Alterations Following Craniocerebral Injuries," respectively.——Dr. John B. deC. M. Saunders, San Francisco, discussed "Development of the Spinal Column and Its Relationship to Certain Injuries" before the Hollywood Academy of Medicine, May 16.

## COLORADO

**Annual Surgical Clinics.**—The first annual surgical clinics under the auspices of the Kit Carson County Medical Society were held at the Cheyenne County Hospital, April 1-2, with Dr. Leonard N. Myers, Cheyenne Wells, as host. The session opened with clinics for appendectomy, inguinal hernia and hysterectomy. Following a luncheon, Dr. Judson D. Moschelle, Indianapolis, guest clinician, conducted a clinic and lectured on

thyroidectomy. Dr. Myers entertained in the evening with a dinner and smoker. The following morning was devoted to clinics.

## DISTRICT OF COLUMBIA

**Personal.**—Dr. Edward J. Schwartz resigned as assistant health officer of the District of Columbia, April 1.

**Society News.**—Speakers before the Medical Society of the District of Columbia, April 24, included Drs. George L. Weller Jr. on "Early Clinical Recognition of Adrenal Insufficiency Resulting from Partial or Total Atrophy of the Adrenal Glands"; James Alexander Lyon, "Dissociation of the Thyroid from the Sympathetic Nervous System and Reduction of the Blood Supply to the Thyroid in the Treatment of Angina Pectoris," and Harry S. Bernton, "The Hygiene of Hay Fever."

## FLORIDA

**Society News.**—Dr. Paul B. Welch discussed "A Comparison of Disease Incidence in Iowa and Florida, with Special Reference to the Effect of Climate upon the Incidence of Digestive Disease," before the Dade County Medical Society in Miami, April 5, and Dr. Harry Hamilton Cooke, "Skull Injuries."

**State Medical Election.**—Dr. Orion O. Feaster, St. Petersburg, was chosen president-elect of the Florida Medical Association at its annual meeting in Ocala, May 15, and Dr. Herbert L. Bryans, Pensacola, was inducted into the presidency. Other officers of the association are Drs. Eugene G. Peek, Ocala, John W. Alsobrook, Plant City, and J. Turberville, Century, vice presidents, and Dr. Shaler A. Richardson, Jacksonville, who was reelected secretary. It was decided to hold the convention in 1936 aboard the S. S. *Florida* on a cruise among the Bahama Islands, newspapers reported.

## GEORGIA

**University News.**—Dr. Eliot R. Clark, professor of anatomy, University of Pennsylvania School of Medicine, Philadelphia, addressed a joint meeting of the University of Georgia Science Club and the Louis Dugas Journal Club of the University in Augusta, April 15, on the vascular system.

**State Medical Election.**—Dr. Benjamin H. Minchew, Waycross, was chosen president-elect of the Medical Association of Georgia at its annual meeting in Atlanta, May 10, and Dr. James E. Paullin, Atlanta, was installed as president. Dr. Edgar D. Shanks, Atlanta, was elected secretary to succeed Dr. Allen H. Bunce. Dr. Bunce has been a member of the Board of Trustees of the American Medical Association since 1929. The next annual session of the association will be held at Savannah, May 12-15, 1936.

## ILLINOIS

**Society News.**—Dr. G. Henry Mundt, Chicago, addressed the Livingston County Medical Society, Pontiac, April 18, on "The Relation of Medicine to the Body Politic."——Drs. Aaron Arkin and Harry Culver, Chicago, addressed the Decatur Medical Society, April 23, on "Blood Dyscrasias" and "Traumatic Lesions of the Urinary Tract," respectively. Dr. Arkin conducted a clinic on heart disease during the day.——Dr. William H. G. Logan, Chicago, addressed a joint meeting of the Warren County medical and dental societies, April 25, on "Common Lesions and Abnormalities of the Face, Mouth and Jaws."——Dr. Maurice L. Blatt, Chicago, was the speaker at a meeting of the Whiteside County Medical Society, April 25, on "Convulsions in Children: Diagnosis and Treatment.——Dr. Samuel Soskin, Chicago, discussed diabetes mellitus at a meeting of the Will-Grundy Counties Medical Society, April 24.——Dr. Sumner L. S. Koch, Chicago, spoke before the Fulton County Medical Society, April 24, on "Repairs of Defects of the Superficial Tissues Resulting from Burns and Injuries."

### Chicago

**Personal.**—At a banquet in his honor, April 24, Dr. Max Thorek was made a chevalier of the French Legion of Honor in recognition of his contributions to surgical science and humanitarian work among the poor. Consul General René Weiller conferred the decoration.

**Society News.**—Puerperal infections occurring in maternal deaths in 1933 was the theme of the meeting of the maternal welfare committee of the Chicago Gynecological Society, May 21. Dr. Abraham F. Lash, assistant professor of obstetrics and gynecology, University of Illinois College of Medicine, presented the topic, and Dr. Julius E. Fleischner discussed it. The committee has been conducting a survey of maternal deaths in the city for three years, and plans to continue for at least one more year.

**Lecture on "Heroes in Medicine."**—Withrow Morse, Ph.D., New York, will give an illustrated lecture on "Modern Heroes in Medicine" at the Allerton Hotel, 701 North Michigan Avenue, June 9. The courage shown by workers in developing scientific facts will be illustrated by a sound motion picture and by slides. Dr. Anton J. Carlson, professor of physiology, University of Chicago, will introduce the speaker. Dr. Morse served as professor of biochemistry successively in the medical departments of the Universities of Nebraska and West Virginia and Jefferson Medical College, from 1916 to 1929. There will be no admission fee, and a cordial invitation is extended to physicians.

**Dr. Taliaferro Named Dean of Biologic Division.**—William H. Taliaferro, Ph.D., associate dean, Division of Biological Sciences, University of Chicago, and chairman of the department of hygiene and bacteriology, has been appointed dean of the division to succeed Frank R. Lillie, Ph.D., Andrew MacLeish distinguished service professor of embryology, whose retirement at the age of 65 is effective this year. Dr. Taliaferro, who will take over his new duties July 1, is also professor of parasitology. He is 40 years of age and graduated from the University of Virginia in 1915. He received his degree of doctor of philosophy from Johns Hopkins University in 1918. He taught protozoology at Johns Hopkins from 1919 to 1924, when he became affiliated at the University of Chicago as associate professor of parasitology. In 1927 he was made professor in this subject and in 1931 became associate dean of the division. Dr. Lillie earned his philosophy degree at the University of Chicago in 1894. The following six years he served on the staffs of the University of Michigan and Vassar College. In 1900 he began his association with the University of Chicago and in 1907 was made professor of embryology; in 1911 he was made chairman of the department of zoology and in 1931 dean of the Division of Biological Sciences. Since 1925 he has been president of the Marine Biological Laboratory at Woods Hole, Mass. He was managing editor of the *Biological Bulletin* from 1902 to 1926 and was formerly associate editor of the *Journal of Experimental Zoology*. Dr. Lillie was recently elected president of the National Academy of Sciences and chairman of the National Research Council, Washington, D. C. Dr. Arthur C. Bachmeyer, director of the University Clinics, has been made associate dean of the division.

## INDIANA

**Society News.**—Dr. Joseph Brennemann, Chicago, discussed acute conditions of the abdomen in the child before the Tippecanoe County Medical Society in Lafayette, April 11.—Dr. Aaron Arkin, Chicago, discussed "Differential Diagnosis of Organic Heart Disease" before the LaPorte County Medical Society in Michigan City, April 18.——The Muncie Academy of Medicine was addressed in Muncie, April 30, by Dr. Merritt Paul Starr, Chicago; his paper was entitled "The Clinical and Physiological Relation of the Pituitary to the Thyroid."——At a joint meeting of the Miami County Medical and dental societies in Peru, March 29, focal infections were discussed by Dr. Benjamin F. Eikenberry and John P. Van Osdol, D.D.S.——A symposium on the surgical pathology of appendicitis was presented before the Huntington County Medical Society in Huntington, April 2, by Drs. William C. Moore and Lall G. Montgomery, Muncie.——At a meeting of the Fort Wayne Medical Society in Fort Wayne, April 16, Dr. Cyrus C. Sturgis, Ann Arbor, Mich., discussed treatment of the anemias.——Dr. George H. Gardner, Chicago, addressed the Northeastern Indiana Academy of Medicine in Kendallville, April 25, on "The More Common Pelvic Infections: Etiology, Pathology, Differential Diagnosis, Treatment and Prevention."——The Madison County Medical Society was addressed in Anderson, April 15, by Dr. Francis C. Guthrie on "Cardiac Pathology and Its Interpretation."

## KANSAS

**Personal.**—Dr. Charles M. Siever, for nineteen years head of the student health department at Kansas State College, Manhattan, resigned, April 1. Dr. Siever, whose resignation will become effective August 31, practiced in Holton from 1909 to 1916, serving as health officer of Jackson County six years of this time. He will probably continue private practice in Manhattan, it was stated.——Dr. Alonzo R. Adams, president of the Leavenworth County Medical Society, has been appointed city physician and health officer of Leavenworth.——Dr. Joseph W. Spearing, Cimarron, has been appointed health officer for Ford County.

**Society News.**—Dr. Andrew B. Rivers, Rochester, Minn., addressed the Sedgwick County Medical Society, Wichita, April 19, on the diagnosis and treatment of peptic ulcer.——The Reno County Medical Society was addressed in Reno,

March 1, among others, by Drs. Ralph H. Major, Kansas City, Mo., on "Hippocrates and the Isle of Cos," and Cecil G. Leitch, Kansas City, Mo., "Pathology of Sudden Death from Heart Disease."——Dr. Thomas G. Orr, Kansas City, Mo., addressed the Shawnee County Medical Society in Topeka, April 1, on fractures of the skull.——Dr. William J. Feehan, Kansas City, addressed the Wyandotte County Medical Society, March 20, on "Emergency Treatment of Simple and Compound Fractures." The society was addressed, March 27, by Dr. Harold V. Holter, Kansas City, on "Obstetrical Shock and Embolism."

## LOUISIANA

**Society News.**—Speakers before the Orleans Parish Medical Society, New Orleans, April 8, were Drs. Michael E. DeBakey and Edward William Alton Ochsner on "Diagnosis and Treatment of Amebic Hepatic Abscess," and John Signorelli, "Chronic Abdominal Discomfort in Children." Speakers before the society, May 13, included Drs. James K. Howles and Edward William Alton Ochsner on "Mycotic Infections of the Skin" and "Total Ablation of the Thyroid in Cardiac Disease," respectively. The society was addressed, April 22, on acute mercury poisoning by Drs. Edgar Hull and Louis A. Monte, New Orleans, and "liver deaths" in surgery by Dr. Frederick F. Boyce.——Dr. Charles L. Scudder, Boston, addressed the Fourth District Medical Society in New Orleans, March 5, on "Fractures of the Hip and Spine" and Dr. James B. Vaughan, Monroe, "The Cardiograph in the Diagnosis of Heart Disease."——Dr. Charles J. Bloom has been elected president of the Louisiana State Pediatric Society, and Dr. Ruth G. Aleman, New Orleans, vice president.

## MARYLAND

**Personal.**—C. Leroy Ewing, director, bureau of laboratories, Baltimore City Health Department, was elected president of the Maryland Society of Bacteriologists recently.——The honorary degree of doctor of laws will be conferred on Dr. James M. H. Rowland, dean, University of Maryland School of Medicine, Baltimore, by Washington College, Chestertown, at the annual commencement.——Dr. Mabel I. Silver has returned to Baltimore on furlough from her station at Tiama, West Africa.

**Negro Death Rates Decline.**—The general death rate per thousand of the total Negro population was 16.8 in 1934 as compared with 23.3 in 1915. Similar declines were noted in morbidity rates, 204.3 in 1934 as compared with 402.1 in 1915 for tuberculosis; typhoid, 7.6 in 1934 as against 47.2 in 1915 and 0.7 in 1934 against 7.1 in 1915 for diphtheria. The colored infant mortality rate per thousand live colored births was 104.1 in 1934, while 1915 showed a rate of 195.5. Increases were noted for heart disease and cancer, the respective rates being 258.6 and 87 in 1934 as compared with 222.4 and 55.2 in 1915.

**Health Department Staff Meetings.**—Dr. Joseph Earle Moore, associate in medicine, Johns Hopkins University School of Medicine, addressed the third meeting of the medical staff of the Baltimore City Health Department, April 12, on syphilis. These meetings were instituted February 8, when Dr. Lewellys F. Barker spoke. Dr. Victor F. Cullen, State Sanatorium, addressed the March meeting on tuberculosis. The medical staff is made up of seventy-four physicians, eleven of whom serve on a full time basis. The remaining sixty-three are engaged in private practice and act as health officers in the prenatal, infant and school hygiene services, in connection with the control of tuberculosis or the venereal or other communicable diseases.

## MICHIGAN

**Exhibition of Hobbies.**—The Woman's Auxiliary of the Wayne County Medical Society, Detroit, sponsored the second annual exhibition of hobbies by members of the profession, their wives and families, April 12-19. The display included a children's exhibit, oil paintings, crayon sketches, sculpture, china, photographs, anatomic drawings, pottery, watercolors and metal work.

**Society News.**—Herbert V. Barbour, chief counsel of the Michigan State Medical Society, addressed the Oakland County Medical Society in Pontiac, April 17, on "Legal Problems and the Practice of Medicine."——Dr. William Wayne Babcock, Philadelphia, addressed a meeting in Grace Hospital, Detroit, April 12, on "Diagnosis and Management of Carcinoma of the Intestinal Tract."——Among others, Dr. Robert F. Ridpath, Philadelphia, addressed the twenty-fifth anniversary meeting of the Detroit Otolaryngological Society, April 24, on "Voice Production and the Various Characteristics of the Voice."——Dr. Fred L. Adair, Chicago, spoke before a joint meeting of the Detroit Pediatric Society and the Detroit Obstetrical and Gynecological Society, April 3, on "Birth Trauma in Relation to Fetal Deaths and Neonatal Morbidity and Mortality."——Dr. Alexander A. Goldsmith, Chicago, addressed the Kalamazoo Academy of Medicine, April 16, on "Regional Ileitis."——Dr. Louis A. Brunsting, Rochester, Minn., addressed the Kent County Medical Society, April 24, on "Changing Conceptions of Eczema."——Dr. Burrill B. Crohn, New York, discussed "Nonspecific Ulcerative Colitis" before the medical section of the Wayne County Medical Society, April 1. Dr. Irving S. Cutter, dean, Northwestern University Medical School, Chicago, addressed a joint meeting of the society and the woman's auxiliary on "Contemporary Medicine," April 8. The Noon Day Study Club and the dramatic section of the society presented three one act plays, April 1: "A Leap Year Bride," "The Dance Below" and "Before Breakfast."

## MINNESOTA

**Memorial to Lucretia Wilder.**—Funds are being solicited by a committee at the University of Minnesota Medical School to establish either a memorial tablet or a scholarship prize in honor of the late Miss Lucretia Wilder, who died as the result of an infection received in the pursuit of her research work on leukocytosis. Contributions should be sent to Dr. Elias P. Lyon, dean, 136 Medical Service Building, University of Minnesota, Minneapolis.

**Society News.**—The Hennepin County Medical Society was addressed, May 6, by Dr. Edward H. Rynearson, Rochester, on "Recent Advances in the Study of the Endocrine Glands, with Special Reference to the Relationship of the Pituitary Gland to the Carbohydrate Metabolism as Well as Its Rôle in the Sex Cycle of the Female."——Dr. Henry W. Meyerding, Rochester, addressed the Becker-Clay Counties Medical Societies at Sand Beach, March 29, on bone surgery.

## NEW JERSEY

**Personal.**—Phillip McKim Garrison, secretary of the pharmaceutical firm of Merck & Co., Rahway, aged 65, died in New York, March 20, of anemia.——Members of the Machaon Club of Hudson County and other friends met at a dinner in honor of Dr. Levings A. Opdyke, Jersey City, April 3, celebrating his fiftieth anniversary in the practice of medicine.——Drs. Alexander Macalister, Camden, and John W. Marcy, Merchantville, were guests of honor at the meeting of the Camden County Medical Society, Camden, May 7, marking the fiftieth anniversary of their graduation from the University of Pennsylvania School of Medicine. Both received embossed scrolls attesting their service.

**Society News.**—Drs. John R. Finley, New York, and Arthur W. Bingham, East Orange, addressed the Bergen County Medical Society, April 9, on "Postpartum Care" and "Prenatal Care," respectively.——Drs. Charles F. Geschickter and Murray M. Copeland, Baltimore, addressed the Essex County Medical Society, Newark, on "Benign Tumors of the Breast and Their Endocrine Relationship" and "Cancer of the Breast in Relation to Diagnosis and Treatment," respectively.——The Essex County Anatomical and Pathological Society celebrated its twenty-fifth anniversary, February 28, with a dinner, at which Dr. Harrison S. Martland, Newark, was the guest of honor.——Dr. Israel Strauss, New York, addressed the Hudson County Medical Society, May 7, in Jersey City, on "Encephalography and Its Diagnostic Significance."

## NEW YORK

**A Member Fifty Years.**—The Ontario County Medical Society at its spring meeting, April 9, paid honor to Dr. George W. Sargent, Seneca Castle, who has been a member of the society for fifty years. Following a dinner at Clifton Springs Sanitarium, Clifton Springs, Dr. Arthur J. Bedell, Albany, president of the Medical Society of the State of New York, made the congratulatory address. Dr. Sargent graduated from the Syracuse University College of Medicine in 1879.

**Personal.**—Dr. Henry R. O'Brien, Albany has been appointed health officer of Cattaraugus County to succeed Dr. Reginald M. Atwater, who resigned to become executive secretary of the American Public Health Association.——Dr. Spencer L. Dawes, medical examiner of the state department of mental hygiene since 1919, retired April 1.——Walter L. Hutchins, assistant secretary of the New York State Department of Mental Hygiene for the last twelve years, died at his home in Albany, April 21, after a brief illness.

**Septic Sore Throat Due to Contaminated Milk.**—An epidemic of about 250 cases of septic sore throat at Baldwinsville, Onondaga County, was reported by the state department of health April 15. More than 90 per cent of those attacked were customers of a single dairy, which supplies about 450

quarts a day from five different farms. Investigation revealed that a cow on one farm was suffering from mastitis of a type previously encountered in outbreaks of septic sore throat. The disease was said to be severe, but no deaths had occurred up to the time of the report.

**Society News.**—Dr. Nels A. Nelson, Boston, addressed a special meeting of the Syracuse Academy of Medicine, April 30, on "Epidemiology of Syphilis."——Dr. Frederic E. Elliott, Brooklyn, addressed the Medical Society of the County of Erie, April 30, on health insurance.——At the annual meeting of the New York State Dental Society in Upper Saranac, June 12-15, Drs. I. Newton Kugelmass and Douglas Quick, New York, will speak on "Medical Management of Dental Caries in Children" and "Cancer of the Mouth: Its Prevention and Early Diagnosis," respectively; and Dr. Arthur Q. Penta, Saranac Lake, N. Y., on "The Rôle of the Oral Spirochete and Associated Anaerobes in Pyorrhea and Pulmonary Suppuration."

### New York City

**Faculty Changes at New York University.**—Dr. Lewis D. Stevenson has been appointed assistant professor of neuropathology and Dr. Howard C. Taylor, assistant professor of obstetrics and gynecology. In addition the following promotions have been announced:

Dr. Edward R. Maloney, to associate professor of dermatology and syphilology.
Dr. Evan W. McLave, to assistant professor of clinical medicine.
Dr. Harold R. Merwarth, to clinical professor of neurology.
Dr. Meredith F. Campbell, to clinical professor of urology.
Dr. Aaron Brown, to assistant clinical professor of medicine.
Dr. Morris Goodman, to assistant clinical professor of medicine.
Dr. William H. Lewis Jr., assistant clinical professor of medicine.

**Hospital News.**—New laboratories were opened at the Hospital for Ruptured and Crippled, April 17, with a ceremony at which Dr. Robert B. Osgood, emeritus professor of orthopedic surgery, Harvard University Medical School, Boston, delivered the principal address. The new department occupies a wing of the sixth floor and includes a medical museum and a library, in addition to facilities for research.——Ground was broken, April 7, for a new wing at the Richmond Memorial Hospital, Prince's Bay, Staten Island, which will double the capacity of the hospital, now forty-five beds. The addition is the gift of Mrs. Louis A. Dreyfus, who has previously given large amounts to the hospital.

**Society News.**—The Medical Society of the County of Queens met with the Queens County Bar Association, April 30, for the following program: Mr. Lorenz Brosnan, "Medico-legal Relationship Between Physician and Patient"; Mr. Charles P. Sullivan, "The Criminal Legal Relationships of Medical Practice," and Dr. Charles Norris, "Modern Forensic Medical Practice."——Dr. François Ackermann, Geneva, Switzerland, lately of the Faculty of Medicine and Dentistry of the University of Geneva, Switzerland, was guest of honor at the annual banquet of the American Stomatological Association, April 3. He delivered an address on "The Local Proximal and General Modifications Resulting from Normal Occlusion."

**Presumptive Diphtheria Carriers.**—The procedure for administrative control of diphtheria carriers has recently been modified by the department of health. The term "presumptive diphtheria carriers" has been introduced to define a person who harbors diphtheria-like bacilli but who gives no history of a recent sore throat or nasal discharge, or who harbors diphtheria-like bacilli but has not been in contact with a recent case of diphtheria. These presumptive carriers will be visited, but they will not be isolated or their premises quarantined. Arrangements have been made for prompt testing of such persons for virulence of the bacilli, and according to the results the carrier will be classified as "diphtheria carrier" or "no case," according to the department's bulletin. They will be excluded from school and prohibited from going out of town until the result of this test is reported. It is believed that the new procedure will relieve hardships sometimes imposed on harmless carriers of nonvirulent bacilli.

### NORTH CAROLINA

**University News.**—Dr. Foster Kennedy, New York, gave the second annual lecture sponsored by Nu Sigma Nu at Duke University School of Medicine, April 13, on "The Relation of Neurology and Psychiatry to General Medicine."——A new 400,000 constant potential volt x-ray machine has been installed at Duke Hospital.

**State Medical Election.**—Dr. Charles F. Strosnider, Goldsboro, was named president-elect of the Medical Society of the State of North Carolina at its annual meeting in Pinehurst, May 6-8, and Dr. Paul H. Ringer, Asheville, was inducted into the presidency. The next annual session will be held at Pinehurst, May 4-6, 1936.

### OHIO

**University News.**—Drs. Adolphus W. Foertmeyer, Douglas A. Johnston and Clyde E. Shinkle were advanced from instructors to assistant professors in psychiatry at the University of Cincinnati College of Medicine at the March meeting of the board of directors.

**Personal.**—Dr. Rezin J. Pumphrey, Massillon, was honored by a dinner, April 9, celebrating the fiftieth anniversary of his entrance into medical practice. Dr. George W. Crile, Cleveland, was the principal speaker.——Dr. John D. Schonwald, Oxford, has been named medical director of Miami University, succeeding Dr. Wade MacMillan, who recently retired.——Dr. William A. McMichael, Keene, has been appointed health officer of Coshocton County to succeed Dr. Samuel B. Kistler, Coshocton.

**Annual Cincinnati Homecoming.**—The University of Cincinnati College of Medicine will hold its annual reunion and homecoming June 8. Dr. Marion A. Blankenhorn, who becomes head of the department of internal medicine at the school, September 1, will be the guest of honor and principal speaker. Dr. Ben L. Bryant, president of the Alumni Association, will preside at the banquet. The following program will be presented Saturday morning:

Dr. Robert A. Kehoe, Lead Poisoning, with Special Reference to Laboratory Diagnosis.
Dr. George M. Guest, The Anemias of Early Childhood.
Dr. William M. Millar, Newer Aspects of Radium Therapy in the Management of Malignant Disease.
Dr. Johnson McGuire, Electrocardiography.

The afternoon will be devoted to a series of round table discussions: Recent Advances in Hematology, Dr. Leon Schiff; Diagnosis and Treatment of Diseases of the Biliary Tract and Pancreas, Dr. Max M. Zinninger, and Peripheral Vascular Disease, Dean Alfred Friedlander and Louis Herrmann. All graduates of the College of Ohio, Miami and the University of Cincinnati College of Medicine are cordially invited.

### PENNSYLVANIA

**Montour County Graduate Assembly.**—The monthly graduate assembly presented by the Montour County Medical Society for April was held at Geisinger Memorial Hospital, Danville. Dr. William Wayne Babcock, Philadelphia, conducted a dry clinic on differential diagnosis of general surgical conditions; other guests were Drs. Norris W. Vaux and Clifford B. Lull, Philadelphia, who presented a symposium on obstetrics.

**Personal.**—Dr. Charles S. Aitken, Brookline, was appointed coroner of Delaware County recently to succeed Dr. James Evans Scheehle, Llanerch, who resigned to become state secretary of welfare.——Dr. John M. Dumin, Mackeyville, has presented an acre of land to the Lock Haven Kiwanis Club as a permanent site for the Kiwanis Health Camp. For the past two years the club has maintained a camp in cooperation with the Clinton County Tuberculosis Society for fifty underprivileged children.——Dr. Martin E. Griffith, Monessen, was guest of honor at a dinner given by the Kiwanis Club of Monessen, April 2, celebrating his fiftieth anniversary in the practice of medicine.——Dr. James T. Strimple, Erie, was recently appointed health officer of Erie County, succeeding Dr. Richard O. Miller.

### Philadelphia

**Personal.**—Dr. John A. Kolmer received the Poor Richard Medal of achievement, awarded by the Poor Richard Club, April 4, in recognition of his work on poliomyelitis vaccine.——Dr. Alfred N. Richards, professor of pharmacology, University of Pennsylvania, will receive the honorary degree of doctor of laws from the University of Edinburgh in June, *Science* reports.

**Needy Medical Students Aided.**—The University of Pennsylvania has been made the beneficiary of most of the $115,000 estate of the late Dr. Delno E. Kercher, according to the New York *Times*. A loan fund will be created for needy students in the medical school who have satisfactorily completed the first year medical course. Graduate students and research workers in medical science will also be entitled to aid.

**Newbold Lecture.**—Dr. C. U. Ariëns Kappers, director of the Institute for Brain Research at Amsterdam and professor of comparative anatomy, University of Amsterdam, delivered the thirty-fourth Mary Scott Newbold Lecture of the College of Physicians of Philadelphia, May 1. His subject was "Development of the Different Layers of the Cerebral Cortex with Reference to Some Pathological Cases; the Forebrain of Prehistoric Races."

**Hospital News.**—Dr. Karl Lindner, Vienna, Austria, gave a series of four lectures at Wills Eye Hospital, April 15-18, on cause and treatment of retinal detachment, clinical pathology of the vitreous, present operations for the treatment of ptosis, and glaucoma and extraction of cataract.——A clinic for the administration of protective serum against poliomyelitis was opened at Temple University Hospital recently by Dr. John A. Kolmer.

**Society News.**—Dr. Edward C. Rosenow, Rochester, Minn., addressed the Academy of Stomatology of Philadelphia, April 23, on "The Present Status of Focal Infection Problems."——Drs. Leon H. Cornwall and Richard M. Brickner, New York, addressed the Philadelphia Neurological Society, April 26, on "Experimental Production of Multiple Sclerosis" and "Treatment of Multiple Sclerosis," respectively.——Dr. J. Norman Henry, health director of Philadelphia, and Louis I. Dublin, Ph.D., New York, addressed the Philadelphia Metabolic Association, March 29, on "Public Health Aspects of Diabetes" and "Diabetes Mellitus, Its Incidence and Epidemiology and Its Relationship to Heredity and Obesity," respectively.——Dr. Benjamin P. Potter, Secaucus, N. J., addressed the Philadelphia Roentgen Ray Society, May 2, on "Bronchography as an Aid in the Interpretation of X-Ray Shadows Cast by Pleuropulmonary Changes in Tuberculosis."

## SOUTH DAKOTA

**Society News.**—Dr. Byrl R. Kirklin, Rochester, Minn., addressed the Aberdeen District Medical Society, recently, on "Diagnosis of Carcinoma of the Stomach."——At the spring meeting of the Yankton District Medical Society in Vermilion, April 24, Dr. Nelms J. Nessa, Sioux Falls, discussed "Therapeutic Applications of X-Rays in Medicine"; Gilbert G. Bicknell, D.D.S., Yankton, "Dental X-Rays as a Diagnostic Aid," and William E. Donahoe, Sioux Falls, "Economics of Organized Medicine."——The Seventh District Medical Society met at Sioux Falls, April 9, with Dr. Frank B. Kirby, North Chicago, Ill., as speaker on "Professional Economics."—Speakers at a meeting of the Huron District Medical Society in March at Huron were Aberdeen physicians: Drs. John L. Calene, on hypothyroidism; Roland G. Mayer, hematuria, and Earle A. Pittenger, medical economics.

## TEXAS

**Society News.**—Dr. Frank D. Dickson, Kansas City, was guest speaker at the semiannual meeting of the Texas Surgical Society, in San Antonio, April 8-9, presenting "A Survey of the Management of Intracapsular Fracture of the Neck of the Femur."——Drs. Roy G. Giles and George V. Brindley, Temple, among others, addressed the Bell County Medical Society, April 3, on "Filtration for Maximum Effects at Different Depths in Roentgen Therapy" and "Carcinoma of the Colon," respectively.——Dr. Robert H. Millwee, Dallas, among others, addressed the Anderson-Houston Counties Medical Society, Palestine, April 2, on "Development and Behavior of Cancer Cells."——Speakers at a meeting of the Falls County Medical Society, Marlin, April 8, were Drs. John Walter Torbett Jr. and Neil D. Buie, Marlin, on "Use of Short Wave Therapy in Medical Conditions" and "Hypertension Treated by Spa Method," respectively.

## VIRGINIA

**Faculty Changes.**—The Medical College of Virginia, Richmond, announces the following changes and additions to the faculty, among others, for the session 1935-1936:

Drs. Frederick M. Hodges and Daniel D. Talley Jr., professors of clinical radiology.
Dr. Harry Walker, assistant professor of medicine.
Dr. Lel C. Riggin, state health officer, lecturer in preventive medicine and public health.

**Society News.**—Drs. William T. Green Jr., Nassawadox, and Joseph H. Hiden, Pungoteague, addressed the Eastern Shore of Virginia Physicians Journal Club, at Nassawadox, February 12, on refraction of the eye and on scarlet fever, respectively.——The Virginia Peninsula Academy of Medicine was recently organized at a meeting in Newport, with Drs. Edward L. Alexander, Newport News, as president and Frank S. Bacon, Hampton, as secretary.——At the quarterly meeting of the Southside Virginia Medical Association in Petersburg, March 12, speakers included Drs. W. Ambrose McGee, Richmond, on "Early Diagnosis, Prevention and Treatment of Whooping Cough"; Richard F. Slaughter Jr., Norfolk, "Treatment of Acute Head Injuries," and John Shelton Horsley, Richmond, "Glomus Tumor."——Dr. Stuart N. Michaux, Richmond, addressed the Lynchburg Academy of Medicine, March 4, on "Etiology and Treatment of Cystocele and Uterine Prolapse, with Special Reference to the Watkins-Wertheim Method of Treatment."—Drs. Thomas M. Rivers, New York, and Emil Novak, Baltimore, addressed the Roanoke Academy of Medicine, February 4, on "Virus Encephalitis" and "Gynecologic Aspects of Endocrinology," respectively.—Among other speakers, Drs. Mason Romaine, Wilbur M. Bowman, Leta J. White and William B. McIlwaine III, all of Petersburg, presented a symposium on anterior poliomyelitis at a meeting of the Postgraduate Medical Society of Southern Virginia at Hopewell recently.

## WEST VIRGINIA

**Society News.**—The Cabell County Medical Society at its March meeting adopted a resolution condemning health insurance conducted by government, national, state or local, and authorized the committee on public policy and legislation to communicate this decision to West Virginia representatives in Congress. Drs. Karl G. Zwick and Samuel L. Bauer, Cincinnati, spoke on "Past and Present Concepts of Eczema and Its Treatment" and "Eczema in Children," respectively.——Dr. John A. Kolmer, Philadelphia, addressed the Parkersburg Academy of Medicine, recently, on "The Rôle of Vaccines in the Treatment of Diseases."——Dr. Martin L. Bonar, Charleston, addressed the Harrison County Medical Society, Clarksburg, March 7, on "Treatment of Syphilis."

## GENERAL

**Northwest Medical Meeting.**—The fourteenth annual meeting of the Pacific Northwest Medical Association will be held at the Davenport Hotel, Spokane, Wash., June 27-29. The following physicians will be on the program:

Loyal Davis, Chicago, Brain Surgery.
J. Edwin Wood Jr., University, Va., Medicine.
Arno B. Luckhardt, Chicago, Physiology.
Tracy B. Mallory, Boston, Pathology.
George E. Brown, Rochester, Minn., Vascular Diseases.
Fred W. Rankin, Lexington, Ky., Surgery.

In addition there will be a lecture on obstetrics, the speaker to be announced later.

**Dr. Cushing Awarded Another Medal.**—At its annual dinner in New York, May 9, the National Institute of Social Science conferred its gold medal on Dr. Harvey Cushing, New Haven, Conn., in recognition of "distinguished services rendered to humanity." Following his graduation at Harvard in 1895, Dr. Cushing engaged in the practice of surgery. He was associated with Johns Hopkins University School of Medicine from 1902 to 1912, then he was Moseley professor of surgery at Harvard and surgeon-in-chief at Peter Bent Brigham Hospital until his retirement in 1932. The following year he became the first incumbent of a new chair at Yale University School of Medicine, the Sterling professorship of neurology. Many honorary degrees have been conferred on Dr. Cushing. In 1922 he was awarded the Charles C. Mickle Fellowship of $1,000 by the University of Toronto Faculty of Medicine. This prize is given to the member of the profession considered by the faculty to have done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science. In 1923 he was awarded the Distinguished Service Medal. During the World War he was a colonel in the medical corps and director of U. S. Base Hospital number 5 (Harvard base hospital unit). He received the Lister Medal of the Royal College of Surgeons in 1930. He was president of the American College of Surgeons and the American Neurological Association in 1923, and of the American Surgical Association in 1927. He was the recipient of the Cameron Prize of the University of Edinburgh in 1924. Dr. Cushing's "The Life of Sir William Osler" won the Pulitzer Prize for biography in 1925.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Northern Westchester Hospital, Mount Kisco, N. Y., $10,000 by the will of the late Mrs. Margaret Jardine Addicks, Greenwich, Conn.

The following New York City hospitals were beneficiaries in the will of the late Mrs. Mary Strong Shattuck: St. Luke's Hospital, $35,000; Bellevue, Broad Street and Women's Hospitals, $25,000; Babies Hospital, $15,000, and New York Eye and Ear Infirmary, $10,000.

Lankenau Hospital, Philadelphia, $10,000 by the will of the late Emilie J. Miller.

Methodist Hospital, Omaha, $10,000 as a gift from Dr. and Mrs. I. C. Wood, Omaha.

Philadelphia General Hospital, $20,000; Kensington Hospital for Women, $10,000; Visiting Nurse Society, St. Christopher's Hospital for Children and Maternity Hospital of Philadelphia, each $5,000 under the will of the late George Leib Harrison.

The Emma L. Bixby Hospital, Adrian, Mich., $25,000 by the will of Mrs. Helen A. Bray, Adrian.

Delaware County Hospital, Drexel Hill, Pa., $5,000 under the will of the late Mrs. Helmbold.

Manhattan Eye, Ear and Throat Hospital, New York, $35,000, and New York Association for the Blind, $2,500 by the will of the late Mrs. Lydia Evelyn Dancink.

Chestnut Hill Hospital, Philadelphia, $10,000 by the will of Mrs. Elizabeth Cuthbert Roberts Wyatt.

An estate estimated at more than $700,000 is to go to the Salem Hospital, Salem, Mass., when it reaches $1,000,000, according to the will of the late John H. Frazier, Marblehead.

Memorial Hospital and Hahnemann Hospital, Worcester, Mass., $10,000 each through a trust fund established by the late Eli Collier and the will of his daughter Etta C. Collier Johnson.

Among bequests by the late Adolph S. Ochs, publisher of the New York *Times*, was a fund of $5,000 for a portrait bust of Dr. J. Bentley Squier, to be placed in the Squier Urological Clinic of Presbyterian Hospital, New York.

Yonkers General Hospital and St. Joseph's Hospital, Yonkers, $25,000 each, and St. John's Riverside Hospital, Yonkers, $150,000 from the Surdna Foundation.

The Children's and Episcopal Hospitals, Philadelphia, $10,000 each from the trust estates of Elizabeth C. and Frances A. Roberts.

Children's Hospital, Philadelphia, $12,000 under the will of the late Mrs. Laura A. Hollar to endow a free room to be called the William A. Hollar Memorial Room.

Episcopal and Methodist Episcopal hospitals, Philadelphia, $5,000 each by the will of the late William S. Vare.

Medical College of Virginia, Richmond, $1,500 for a fellowship in the department of pharmacology for research on digitalis by Bare Chemicals, Inc., Nepara Park, N. J.; $1,200 for research on arthritis, by Eli Lilly & Co., Indianapolis; and Parke, Davis & Co., $1,500 for research in the department of pathology.

New York University College of Medicine, about $180,000 and the New York Academy of Medicine, $1,000 by the will of the late Dr. William Chittenden Lusk.

French Hospital, New York, and Monmouth Memorial Hospital, Long Branch, N. J., $116,070 each by the will of the late John Hubbard.

Jefferson Medical College, Philadelphia, a fund of $63,000, left by Mrs. Jennie M. Shoemaker for aid of needy students as a memorial to her husband, Dr. John V. Shoemaker, who was head of the old Medico-Chirurgical College at the time of his death in 1910. The fund has been held in trust since Mrs. Shoemaker's death in 1921.

University of Pennsylvania, $125,000 to found the George de Benneville Kolm Memorial, income from which is to be used for the medical school; $50,000 in trust for the graduate school of the university for research in internal medicine through the will of Mrs. Sarah Keim Montgomery.

## FOREIGN

**Cameron Prize.**—The University of Edinburgh has awarded the Cameron Prize for 1935 to Dr. Julius Wagner-Jauregg, emeritus professor of psychiatry and neuropathology in the University of Vienna, in recognition of his discoveries in connection with malarial treatment of dementia paralytica, *Science* announces.

**Congresses in Brussels.**—The fourteenth annual session of the "Medical Days" in Brussels will be held June 29-July 3, with physiopathology of the endocrine glands as the principal topic of discussion. It is expected that this session will be more than usually interesting because of the international exposition in progress in Brussels. For information address Dr. René Beckers, secretary general, 141 rue Belliard, Brussels, Belgium. The eighth International Congress of Military Medicine and Pharmacy will be held at the same time, beginning June 27. Information concerning this meeting may be obtained from the general secretary, Health Service, Ministry of National Defense, Brussels.

**Society News.**—The International Congress on Life Assurance Medicine will be held in London, July 23-27. Among other speakers will be Drs. Chester T. Brown, medical director of the Prudential Life Insurance Company, Newark, N. J., on "Methods of Estimating Risks," and Samuel B. Scholz Jr., medical director of the Penn Mutual Insurance Company, Philadelphia, on "The Rôle of Health Service in Life Insurance."——The twelfth International Congress of Pharmacy will be held in Brussels, Belgium, July 30-August 5. J. Breugelmans, 3 rue du Gouvernement Provisoire, Brussels, is secretary.——Prof. Fernand Bezançon, Paris, has been chosen general secretary of the International Union Against Tuberculosis, succeeding the late Dr. Léon Bernard.

**Hungarian Memorial Volume.**—A special issue of the *Orvoskèpzés* (Hungarian Medical Postgraduate Journal, published by the Hungarian Medical Postgraduate Central Committee, Budapest) has just been issued in commemoration of the 300th anniversary of the Royal Hungarian University of Sciences. The volume is dedicated by the Hungarian Medical Postgraduate Central Committee to its alma mater. The president of the committee is Prof. Dr. Emil de Grósz. The other officers and members of the committee are the professors of the various faculties of the university. A complete list of the names is shown on the front of the cover page of the volume. The contents of the volume comprise articles written by Prof. Freiherr Anton von Eiselsberg, Vienna, Prof. Ludwig von Aschoff, Freiburg im Breisgau, Prof. R. Anthony, Paris, the members of the committee, and other Hungarian professors and prominent scholars in the various faculties of medical science. The subject matter of the articles is medical education in the various branches of medical science as applied in the universities of Hungary at present with reference to its historical development. One article is on the education in public hygiene in the civilized countries, as at present. Several articles are written in French, several in German, one in Italian, and the most in Hungarian. The *Orvoskèpzés* is published bimonthly and the memorial volume is a special issue published in the twenty-fifth year of the journal's existence.

# *Foreign Letters*

## LONDON

*(From Our Regular Correspondent)*

May 4, 1935.

### No Increase of Malnutrition

Attempts have been made by the labor party to represent maternal mortality and other matters of public health as due to malnutrition and the result of insufficient unemployment dole. These allegations have always been shown to be unfounded. In December last a letter appeared in the *Times* from a Sunderland physician maintaining that between the Tyne and the Tees (a large industrial area in the north of England where unemployment is rife) there was, in spite of what the chief medical officer of the ministry of health said in his last two reports, a substantial and progressive deterioration in public health. The minister of health immediately appointed some of his higher officials to make an investigation. They visited the area and reported that the death rates from bronchitis and pneumonia, and the case mortality rate from scarlet fever and diphtheria, do not indicate an unfavorable effect of the present economic conditions. Tuberculosis and rickets told the same story. A general survey of the population showed in 75 per cent a good standard of health. The remainder manifested a varying degree of subnormality, grading from minor manifestations to what for want of a better name may be termed "malnutrition." But these terms are to be construed in relation not only to diet but also to environment, family care, habits and recent or active illness. From their own knowledge of the district since 1928 these officials could see no evidence of deterioration. With an occasional exception the consensus of medical opinion in the district confirmed this conclusion. The conditions in the town of Sunderland were less favorable, but this is attributed to less favorable housing and to environment. Realizing the long continued economic stress and with knowledge of the home conditions, the officials were often surprised at the high standard of health and courage maintained.

### The Health of the Navy

The report on the health of the navy for 1933, just issued, shows an increase of the incidence of disease compared with 1932 and the five year average from 1928 to 1932. The total force was 83,125 and the total number of cases of disease and injury 41,852. Medical officers had difficulty in deciding how to return the catarrhal epidemics that occur in ships each winter. Many returned them as "epidemic catarrh"; but, as it is impossible to draw a line between this and an epidemic of mild influenza, all these cases are now shown under this heading. They numbered 3,770. It has been shown that excrement from seagulls in areas in which the sea water is contaminated with sewage may contain Bacillus typhosus. Automatic chlorinators are being fitted to the dockyard wells in Sheerness, as these have sometimes been found to contain impurities. A salt water swimming bath in an establishment at Gosport for training boys was shown bacteriologically to be grossly contaminated.

### The Epidemic of Malaria in Ceylon

The serious epidemic of malaria in Ceylon, after some diminution, is again assuming greater proportions. Colonel Gill, the expert adviser from India, is touring the affected districts. The experiment of treatment with the new drug atebrin-musonat appears to be successful. The sponsor for this drug is Dr. A. T. W. Simeons, who arrived in January. He has had much experience in India, Africa and Siam and at the Institute of Tropical Diseases at Hamburg. So confident is he of the value of the drug that he has offered his services free to the government of Ceylon. The total number of deaths

registered in Ceylon during the five months from November to March was 113,811, compared with 47,107 in the corresponding period of last year. The excess is attributed to malaria.

### The Robert Jones Memorial

The Council of the Royal College of Surgeons has agreed to the suggestions of the Robert Jones Memorial Fund Committee for the foundation of a Robert Jones professorship of the Royal College of Surgeons of England for an annual lecture or lectures on some subject connected with orthopedic surgery (sum allocated $5,000) and for the foundation of a traveling research fellowship to be awarded alternately by the University of Liverpool and the Liverpool Medical Institute jointly, and the Royal College of Surgeons (sum allocated $10,000).

### The Future of Radiologic Diagnosis

At a meeting of the Medical Society of London, Dr. H. G. Hodgson, radiologist to King's College Hospital, introduced a discussion on the future of radiologic diagnosis. He said that coming radiologists must equip themselves with a wider and more extensive basis in pathology and clinical medicine. They must be able to talk to the neurologist, laryngologist, bacteriologist and other specialists in their own language and have a full knowledge of their difficulties. In the future, hospitals would demand that radiologists should have the same higher qualifications as their physicians and surgeons. The progress of x-ray technic would take place along two main lines—increased anatomic detail due to teleroentgenography and increasing refinement of opaque materials. He referred to a rotating target tube, which had six focal spots of the smallest possible size, through which only a fraction of the total discharge passed. Thus a much heavier current could be used without injury. This tube had the advantage of the finest possible focus. Recently useful work had been done in the study of the gastro-intestinal mucosa by small quantities of barium sulphate with a technic whereby the rugae were outlined. Another useful method was the filling of the colon with barium sulphate, which was afterward siphoned off and air injected, so that abnormalities not previously revealed, such as polypi, became visible.

### Sir John Rose Bradford

The death of Sir John Rose Bradford, F.R.S., past president of the Royal College of Physicians, has removed one of the leading figures of English medicine. Born in London in 1863, he was educated at University College, where after a distinguished career as a student he joined the staff. His earliest work was physiologic. In conjunction with Bayliss he wrote on electrical changes in secreting glands. The action of drugs on the circulation and secretion of the kidney, the innervation of blood vessels, the results of partial nephrectomy, and the influence of the kidney on metabolism were other subjects. On the basis of his physiologic work he became the leading authority on disease of the kidney. In Allbutt's "System in Medicine" he wrote the articles on the general pathology of the renal functions and on nephritis; and in Allchin's "Manual of Medicine," those on rabies, the mycoses, and diseases of the ductless glands.

### A Device for Viewing Operations

At St. Bartholomew's Hospital a device has been adopted to enable more persons to view a surgical operation. A mirror with a universal joint is attached to the arm of the lamp. After the field of operation is illuminated and ready for the surgeon, the mirror is adjusted to the angle that gives most visibility to those not immediately concerned with the operation. In the ordinary way the surgeon and his assistants so block the visibility of the field that others can get only an occasional glimpse. The use of the mirror enables a larger audience to view the operation and has proved satisfactory.

## PARIS

*(From Our Regular Correspondent)*

April 26, 1934.

### Character and Treatment of Scleroderma

Leriche reported, at the January 16 meeting of the Société de chirurgie, his experience in forty-six cases of scleroderma, in thirty-two of which operation had been performed. Scleroderma, although its chief clinical manifestation is a thickening of the skin, is primarily a skeletal disease, in which, under the influence of a hyperparathyroidism, the skeleton liberates calcium constantly and abnormally, thus depriving the body of its calcium reserves without replenishing them. The skin accumulates a portion of this free calcium, so that one often sees a scleroderma associated with Raynaud's disease and arthritis deformans. Therefore scleroderma is an endocrine dysfunction, affecting specifically the parathyroids. Scleroderma is not a sympathetic trophoneurosis. The sympathetic is simply an intermediary in the mechanism of production of the scleroderma. The parathyroid hormone causes vasomotor disturbances of a hypertonic type at the periphery; hence sympathectomy is efficacious. Since 1922, Leriche has operated in thirty-two cases. He excludes advanced sclerodermas with mummification, cases presenting bronzed skins and marked asthenia, and cases of scleroderma of the extremities of the edematous type, in all of which the operation is of no avail. Operation is indicated in all other forms, especially in the slowly developing cases with multiple skin areas (rather than in generalized cases) with the exception of those involving the abdomen. If there is hypercalcemia and elective localization in a young woman, he advises unilateral parathyroidectomy or a resection of both inferior thyroid arteries. If the patients are young and do not have lesions that are far advanced, one ought also to perform a periarterial sympathectomy. If the lesion is of long standing, ganglionectomy or division of the rami is the better operation. The various operative procedures have given some highly gratifying results. Three patients have been well for more than ten years.

### Examination of Students for Pulmonary Tuberculosis

At the February 12 meeting of the Academy of Medicine of Paris, Prof. M. L. Saye of the University of Barcelona, Spain, reported the results of the examination of 637 first year students, varying in age from 17 to 20 years. Students were grouped as suspects if they had been exposed to infection in their homes during the preceding ten years or if roentgenoscopy or roentgenography revealed old lesions of the apexes or large tracheobronchial lymph nodes or if they had a pleurisy with effusion during the ten year period prior to matriculation. There were 126 of the 637 in this group of suspects, while in thirty-three cases a definite pulmonary tuberculosis was found. In five of these thirty-three cases the students knew that the disease existed, two suspected such a condition and twenty-six did not. In twenty-six of the thirty-three cases the lesions were incipient. In five they were moderately and in the other two far advanced.

A comparison between roentgenoscopic and roentgenographic diagnosis revealed the latter as being far superior. In 42 per cent the roentgenoscopy was inadequate, while in 30 per cent lesions were discovered on the films that were not visible on simple fluoroscopic examination. In the discussion, Rist emphasized the necessity of subjecting all first year students to such complete physical examinations.

### The Treatment of Malignant Neoplasms with Snake Venom

At the February 5 meeting of the Academy of Medicine, Lavedan reported fifty-one cases of cancer, located in various parts of the body, treated with cobra venom. Every patient received a minimum of four months of injections. Forty-five were cases presenting local or metastatic recurrence following

either operation alone, or high voltage roentgen therapy alone or both. In six cases, no previous treatment had been given. The initial dose was 5 mouse units three times a day every forty-eight hours. After every third injection the dose was increased by 5 units up to 50 units. When the latter dose was reached, the injections were given twice a week. No complications were observed unless the venom was injected directly into a vein. The injections seemed to have no bad effect on the kidneys, but when bleeding was present it seemed to be increased, so that in cancers of the uterus one was obliged to discontinue the injections during the menstrual period.

In only about one tenth of the cases did the cobra venom have any influence on the pain, so that there is no reason why, in incurable cancers, one should not prefer to give morphine in gradually increasing doses rather than to attempt to alleviate the pain with a preparation such as cobra venom, the action of which is inconstant. The effect on the general condition is psychic. Just as after injections of lead, copper and streptococcus toxins, there is a temporary feeling of well being, of renewed force and a return of the appetite. This lasts about as long after cobra venom injections as after the other substances. The cobra venom has no influence on the development of the growths even when the injections are made directly into the tumor. Histologic study of such injected superficial tumors shows that the neoplastic cells retain all their vitality, the mitoses being just as numerous as though no injection had been made.

### Late Recurrence of Cancer

At the February 26 meeting of the Academy of Medicine eight cases were reported by Prof. Henri Hartmann of recurrences of cancers operated on from nine to forty-three years previously. In four cases of cancer of the breast, recurrence took place nine, sixteen, twenty-two and forty-three years after operation. In the case in which operation had been done forty-three years before, the patient was now 92 years old and a slowly developing malignant ulceration was taking place in the operative scar. In one case of cancer of the body of the uterus, recurrence was noted in the vaginal cicatrix thirteen years after complete hysterectomy. In a second case, treated on two occasions with radium for a cancer of the cervix, a recurrence was found in the vesicovaginal septum thirteen years later. In a case in which a resection of the rectum had been performed, a cancer of the ascending colon developed seventeen years later. In a case of pylorectomy for cancer, performed in 1904, radiography in 1931 revealed an extensive carcinomatous involvement of the stomach.

### Professor Crouzon, Professor Johannsen and Lord Moynihan Elected Members of Academy

At the February 20 meeting of the Academy of Medicine, Professor Crouzon of Paris was elected fellow and Professor Johannsen of Sweden and Lord Moynihan of England were elected nonresident fellows. Such an election is considered a great honor and is in recognition of especially meritorious contributions to medicine.

### Vaccination Against Yellow Fever

At the February 19 meeting of the Academy of Medicine, Prof. Charles Nicolle, whose research work on yellow fever is familiar to American bacteriologists, reported the results of the vaccination of 3,000 persons in the West African colonies of France. Each of these 3,000 natives has received three inoculations of the vaccine; that is, the full dose. A still larger number of Europeans have already been given one or two inoculations. The method is absolute, innocuous and highly efficacious, much more than the administration of a serum against yellow fever. Professor Nicolle believes that serotherapy should be abandoned in favor of vaccination.

## BERLIN

*(From Our Regular Correspondent)*

March 25, 1935.

### Cancelation of Professors' Certificates

The decision of the federal ministry for art, science and education, following a controversy in regard to the theory of racial origins, to deprive Privatdozent Dr. K. Saller of the venia legendi, has caused a stir in academic circles. Saller was an accredited instructor in ethnical science and an assistant in the Anatomic Institute. He had specialized, for years, in anthropologic and kindred studies. His articles and books were esteemed for their value without reference to political problems, although his point of view on racial questions did not agree with the Rassenpolitisches Amt of the national-socialist party. In his farewell speech to the students, Saller, who as an instructor had taken the oath to support Hitler, said: "Races are not something absolutely rigid, something that has existed since primeval days. They are in a constant state of flux, sometimes increasing their diversification and sometimes passing through processes that tend to eliminate their differences. Racial differences are not manifested solely by physical characteristics but also by mental traits. In the process of time, our German race developed from previous races, and it has become entwined with the other modern races." The Rassenpolitisches Amt, however, issued a statement that the "state cannot approve the continuance in their posts of teachers who, by improper use of their scientific point of vantage, are endeavoring to break down and destroy the results of racial unity that are based on a common biologic foundation." From the beginning, Saller has refused to consider the political aspects of racial research, and in 1932 he expressed his disapproval of the existing views on race problems. Saller had stated that his love of truth and his sense of honor as a scientist would prevent him from renouncing his views. Judgment has been passed on him without a hearing, and he has voluntarily resigned his post. Dr. Gross, a physician and the director of the Rassenpolitisches Amt, has stated that "party and state cannot allow any person, under the cloak of an ostensibly scientific post, to exert a disturbing influence on the training of German youth in a uniform national and racial mode of thinking, while, at the same time, possible reference may be made to national socialism and to its leader."

In addition, Dr. Arthur Kronfeld, who, although a Jew, has been able to hold his position as extraordinary professor in psychiatry at the University of Berlin, by reason of having fought at the front in the World War, has now been deprived of the venia legendi. According to the new regulations concerning habilitation (THE JOURNAL, April 6, page 1259), the minister of public instruction may withdraw or restrict the venia legendi, "if it seems desirable in the interest of the university." No explanation for the order was given. A special decree of the same minister excludes the "non-Aryan" university instructors (there are a few who have retained their posts by reason of having fought at the front in the World War or for other specific reasons) from service on the examination boards. The Deutsche Dozentenschaft, the organization of the university instructors, has conveyed to the minister its expressions of gratitude for his action in this matter.

### The Crusade Against Lupus

Professor Stühmer, ordinarius in dermatology at the University of Freiburg, who was chosen to promote the crusade against lupus in a region of southwestern Germany, published recently a report. A publicity campaign revealed an increasing number of patients, so that at the close of the campaign, Oct. 1, 1934, 2,800 lupus patients were under treatment, mostly of a severe type. The incidence of lupus is placed at one patient per thousand of population. In Westphalia, where the crusade has been best organized and under way for nearly nine years, the number of grave cases continues to increase. In Baden, Stühmer dis-

covered in a short time more than 400 lupus cases in the vicinity of Freiburg. It appears that in the Black Forest area there is a relatively large number of severe cases.

### The Public Health Services

Beginning April 1, the public health services of Germany will take on a more uniform character. The federal minister of the interior has issued detailed instructions. The public health services in the larger cities and districts will be expected to accomplish the following five main tasks: (1) to observe the health conditions; (2) to watch over the applications of health legislation; (3) to render expert opinions to all competent authoritative bodies in matters pertaining to public health, and to submit to them plans for the promotion of public health; (4) to make the examinations and research needed for the application of the regulations affecting the preservation of purity of race and the prevention of hereditary defects in future offspring, and (5) to issue certificates in all cases in which the presentation of an official medical testimonial is required. The physicians in the public health services should take every opportunity to familiarize themselves with local conditions affecting the public health and should endeavor to combat ignorance and prejudice on every hand. The public health services must bring to the attention of the proper authorities all violations of health regulations. Physicians of the public health services are given admission to all places over which they must exercise supervision. They are assured also of the close cooperation of other official boards, the local police force, and the health forces of the national-socialist party. Full time health officers may have private patients and may serve as medical advisers to certain bodies, but they will not be permitted to participate in general panel practice.

### Creation of Roentgenologic Archives

In Berlin the health insurance societies, in association with the competent medical organizations, have established a system of roentgenologic archives at the headquarters of the Verband der Krankenkassen. The panel physicians must return (following their use) to the physicians who have made a roentgenologic examination all the films received from them. Every three months the director of the roentgenologic archives will secure from the roentgenologists all the films, together with the observations made thereon, of the members (including their families) of the large Berlin krankenkassen. The films will be classified and preserved.

### Possibilities of Resuscitation After Apparent Death

At the University of Königsberg, Professor Bruns instituted experiments, in connection with poisoning from carbon monoxide and from illuminating gas, to determine electrocardiographically the final cardiac standstill after breathing has ceased. It was found, in a number of animals, that the electrocardiograph recorded action currents for about half an hour after disappearance of the heart tones and the pulse. The value of resuscitation methods was tested by the electrocardiogram. Only in unconscious persons with preserved corneal reflexes and demonstrable (though only weak) respiration and heart action do irritations of the skin or the mucosae (such as are employed in resuscitation attempts) reach the vital centers in the spinal cord or the heart itself. Artificial breathing has no effect on clinical cardiac standstill unless, at the same time, it constitutes a stimulus to the heart action. Through the expiratory contraction of the chest a flow of blood from and to the veins of the thorax and in the pulmonary vessels is brought about. These movements of the blood are, at the same time, mechanical irritations that bring about contractions in the endocardium, as is shown by the electrocardiograph. An indirect heart massage produced by thumping and agitating the heart region (seventy times a minute), by rhythmic elastic blows and by the short application of pressure likewise gives rise to action currents. These do not, however, result if only respiration with the aid of the pulmotor is induced. These researches show that, in case of clinical cardiac standstill, the chief value attaches to energetic heart massage. The stimulation of respiration alone does not suffice, since that in itself is inadequate for the stimulation of the heart. If the electrocardiograph gives evidence of cardiac standstill, there is no maneuver that will restore the circulation; nor will any injection exert such influence. Nevertheless, coincident with heart massage, artificial respiration must be applied in order that, after restoration of heart action, blood containing a normal amount of oxygen may be supplied to the heart muscle. Hence in cardiac and respiratory standstill, that is in apparent death, only such methods of artificial respiration are useful that permit in addition an energetic heart massage through somewhat vigorous thumping of the heart region.

## ITALY

*(From Our Regular Correspondent)*

March 15, 1935.

### Proposed Differentiation of University Professors

Some time ago Prof. Giacinto Bosco suggested that, after university professors have occupied a chair a certain number of years, they be promoted to a higher rank. Recently Professor Taddei of Florence called attention to the difference in the preparation and the activities of a professor whose teaching is solely ex cathedra and the work of the professor whose duties include the active demonstration of fundamental principles. The surgeon, for example, is not ready to occupy a chair until he is at least 45 years of age, and he cannot ordinarily be a good demonstrator of surgical technic after he has passed the age of 70. On the other hand, a professor of law, of pure science or of languages may be a fairly good instructor at 28 and may continue to teach at the age of 75. Hence it is desirable, in the event of any reforms introduced in university professorships, that a distinction be made, from the standpoint both of salary and of morale, between professors of theoretical subjects and those who must combine active demonstration with instruction ex cathedra. The latter professorships require at least ten years more of preparation than the former and cannot be conscientiously held, by reason of diminished physical efficiency, up to the present age limit of 75, which is too high for such subjects.

### Tuberculosis and Pregnancy

From controlled investigations carried out several years after childbirth (or miscarriage) on 105 tuberculous gravidas examined during the period 1925-1932 in the school of obstetrics and the maternity institute of Trieste, Dr. Duca emphasized that it is impossible to question the unfavorable influence of maternity on the pulmonary types of the first Neumann group; namely, in the destructive types with bronchogenic diffusion. Eighty-five per cent of such deaths occurred within a year from the termination of the pregnancy, whether at term, prematurely or the result of miscarriage.

The tuberculous types of the third group reveal only exceptionally an unfavorable action due to maternity. Maternity may reactivate also the rudimentary types, but the exacerbation does not last long and shows no tendency to develop further. In such cases there are seldom any indications for the interruption of pregnancy. Such intervention may, however, be useful, and even necessary, in well established cases of pulmonary disorders of the second group (types that develop by the hematogenic route), although, from the statistics of Dr. Duca, it appears that 75 per cent of the patients did not suffer any exacerbation imputable to the functions of maternity. The rare indications for therapeutic abortion in the types of the second group may in all probability be overlooked if the patients can be placed in a sanatorium during pregnancy and for a long period after confinement.

### Prof. Guglielmo Bilancioni

The death of Prof. Guglielmo Bilancioni, director of the Clinica otorinolaringoiatrica of the University of Rome, at the age of 53, has been announced. He graduated at the University of Rome in 1905 and early acquired the venia legendi in general pathology and the history of medicine. He became professor at the University of Pisa in 1924 and removed to Rome in 1929, where he organized a large clinic, a much frequented ambulatorium (more than 20,000 patients annually) and laboratories for research. He was the author of 300 publications, among which were several books and a manual of his specialty, in three volumes. Recently he had been engaged in the compilation of a work entitled "Laringe e polmone," which remains unfinished. His research includes studies on the musculature of the eustachian tube and its relations to the middle ear, explanations of the phenomena elicited by stimulation of the labyrinth and of their relations to the neurovegetative constitution of the individual, and studies on the changes in the blood vessels and in respiration during the rotatory movements of the body, on the manifestations of laryngeal fatigue, and on the local treatment of ozena. He was president of the Istituto storico italiano dell'arte sanitaria, founder of the monthly review *Il Valsalva*, and a member of the national commission for scientific vindications and of numerous Italian and foreign societies and academies. During the World War he contributed to the creation of laboratories for medical research on aeronautics and was consultant in otology in military aviation.

### Course in Medicine Pertaining to Sport

The Federazione dei medici sportivi has organized a course in medicine pertaining to sport, which will be given at Rome. The first lecture was delivered by Professor Busi, dean of the faculty of medicine of the university, on the importance for sport devotees of the radiographic record of the thorax. To demonstrate the value of serial radiologic thoracic researches on sport devotees, the speaker passed rapidly in review the principles that today are dominant with respect to the pathogenesis of pulmonary tuberculosis, and he emphasized that it is necessary to search diligently for foci of pulmonary tuberculosis in young persons who are planning to devote themselves to sports. In Italy the view that sports should be organized on a hygienic and scientific basis is gaining adherents. During the past three years, Busi has been carrying on a prolonged experiment with radiographic thoracic record cards, which consists in making serial observations on students of the faculty of medicine. The results thus far secured reveal that about 30 per cent of young persons who appear perfectly healthy have latent tuberculous foci in the respiratory apparatus.

### Appointment of Four Health Inspectors for the Army

Recent legislation provides for the appointment of four health inspectors for the army. They will be under the control of the higher officers of the medical corps and will have charge of the health inspection service in its relation to the various armed forces. The inspectors will be located in Turin, Verona, Rome and Naples.

### Radiologic Society

The south central group of the Società italiana di radiologia medica held recently its twentieth session in Naples, under the chairmanship of Professor Piccinino. Prof. Antonio D'Istria discussed postoperative irradiation of mammary cancer. He stated that the current of opinion favorable to the use of postoperative roentgenotherapy has been gradually rising. Statistics revealed a frank improvement in the remote results in patients irradiated after the intervention in comparison with patients who have received no after-treatment. The speaker made an inquiry among the radiologic schools of the world, the greater part of which expressed themselves favorable to the systematic application of the method. A few schools stated that they were decidedly opposed to systematic irradiation after surgical intervention and that they preferred to await a recurrence before applying irradiation.

Basing his opinion on replies to his questionnaire and on his personal experience, the speaker concluded that postoperative roentgenotherapy is to be regarded as surely effective. There were many communications presented on the subject.

Sorrentino gave a complete discussion of irradiation of the sinus caroticus, which he stimulated, either with diathermy or with roentgen rays, in healthy persons and in persons with high or low blood pressure. Contrary to the general opinion, he found that the results are slight and not of any practical value.

Milone emphasized the value of radiologic observations following gastro-enterostomy and explained his operative technic, which he had been applying the past year with good results.

Two communications dealt with the subject of the azygos lobe, one being presented by Fucci of Naples, who carried out painstaking research on a lung with four lobes, injecting into the various bronchi opaque substances, and reaching the conclusion that the azygos lobe is not an anatomic individuality.

## AUSTRALIA

*(From Our Regular Correspondent)*

April 3, 1935.

### Royal Australasian College of Surgeons

An epoch of medical progress in Australia was marked March 4 when the building of the Royal Australasian College of Surgeons was formally opened in Melbourne by Sir Holburt Waring, Bart., president of the Royal College of Surgeons of England, in the presence of a large gathering of physicians from many parts of the world. Every state in the commonwealth was represented, as was the dominion of New Zealand; and representatives were present from the United Kingdom, from Canada, from South Africa, and from the United States of America. A special message to the college was sent by the king, and Sir Holburt Waring delivered a greeting from the council of the Royal College of Surgeons of England. Dr. Henry Wade read a message from the council of the Royal College of Surgeons of Edinburgh. Dr. Donald C. Balfour represented the American College of Surgeons and conveyed its greetings, and Prof. E. W. Archibald delivered a message from the Royal College of Surgeons of Canada.

Prof. F. Wood Jones of Melbourne delivered the Syme oration for 1935, choosing as his title "The Master Surgeon." The period of the master surgeon lay between the years 1550 and 1850. Even if this period was not that in which surgery attained its greatest heights, it at least produced the greatest master surgeons. Professor Wood Jones spoke of the dexterity and skill of these men, of their love of humanity and of their tireless energy and capacity for work. He pointed out that the master surgeons were all master anatomists—they made anatomy a lifelong study and continued throughout their active lives to dissect and operate on the cadaver. They had an intense dislike to the performance of operations; to operate on the human body was something to be done almost as a confession of failure. Turning to antiseptic and modern aseptic surgery, with its safe and comfortable anesthesia, Professor Wood Jones said that operations were nowadays so easy and might be undertaken with such impunity that many medical graduates muddled along in safety. He had a dream, admittedly an academic one, that the day of the master surgeon might dawn again, that surgeons would strive to emulate the master surgeon of olden days, and that all save emergency operations would be performed by a master hand. He expressed the opinion that clinical teachers should continually search for students who showed promise of developing the qualities of

the master surgeon and that every effort should be made to help such students and to train them in the science and art of surgery.

The new building is an architectural ornament to Melbourne, a city already renowned for the dignity of its buildings. It is situated in park lands in near relationship to the state parliament house and the treasury buildings. In the design of the College of Surgeons building the architects have succeeded in evolving an edifice which is fresh and modern in spirit yet does not break with tradition. The main interest of the façade is the portico, with its flight of black steps. The pediment is carved with the coat of arms and the motto of the college and is supported by lofty square columns of Sydney sandstone. Over each entrance door is a plaque symbolic of various branches of the Royal College of Surgeons. Over the left-hand door a black swan represents the Western Australian branch; the center, the lion of Great Britain, the parent body; and the right the galleon representing the New Zealand branch. These pieces of ornament are burned in full color in terra-cotta. The tall entrance doors are bronze and plate glass and emphasize the verticality and dignity of the portico. Spaced at points of importance round the building are four niches which it is intended to furnish with busts, and at each end of the building are stone plaques in which full size statues can be placed. It is to be hoped that some generous citizen may make it possible to represent here those two benefactors to mankind Pasteur and Lister.

The building is the first step in a three stage project, which will ultimately include the provision of research facilities. In the field of modern medical architecture it is a fitting successor to the Institute of Anatomy at Camberra—a building that is at once arresting and inspiring.

### Lead Poisoning at Smelters in Queensland

In the report of a medical study into the incidence of lead poisoning at the smelting works at Mount Isa, Queensland, an analysis of the claims for compensation for lead poisoning shows that the mine is responsible for 18.5 per cent of the total claims, the mill for 14.8 per cent, and the smelting works for 66⅔ per cent; in other words, the smelters cause twice as much lead poisoning as the mine and the mill put together.

Routine examinations, including a careful blood investigation, were made of the 1,892 employees at the mine, and 27 per cent showed some slight or mild degree of lead poisoning. Serious cases detected in this way were 2.1 per cent.

The investigator Dr. J. V. Duhig states that lead poisoning does not exist without changes in the blood and that proper examination of the blood, and especially a study of the morphologic changes of the red cells by a person of great experience and patience, are absolutely essential to the diagnosis of plumbism. He expresses the view that compensatable disability in acute cases does not exist unless punctate basophilia has been demonstrated by a suitable standard of technic to the extent of at least 1,000 coarsely stippled cells per million. Less degrees of change are to him of importance only so far as the early diagnosis of the condition is concerned.

Recommendations are made regarding the prevention of the emission of flue dust from smelter stacks, the ventilation of tapping floors, the protection of persons entering furnaces, the ventilation of buildings, works and other places where lead processes are carried on, the maintenance of roads, pathways and yards so that dust shall not arise, the provision of overalls and close head covering, the use of respirators, the provision of meal places so that they shall not be exposed to dust or fumes from any manufacturing process, and the provision of drinking water that is not contaminated by dust. The danger of preparing cigarets or cutting and rolling tobacco in lead dust atmosphere is mentioned.

The regular analysis of atmosphere air about the plant is recommended. In order to exclude these employees with a low lead tolerance, a probationary employment period of four months is suggested.

### Medical School for Queensland University

After years of patient effort, the arrangements for the establishment of a faculty of medicine at the University of Queensland, situated in Brisbane, are now reaching a concrete form. The state government has appointed a committee to advise on the details of establishment. It will be necessary for the state treasury to make a grant for the purpose.

The serious difficulty of accommodation was recently overcome by the generous donation to the university by the Masons of Brisbane of their old Masonic temple. The building is a massive construction and requires only a little renovation and alteration to make it serve its new function. The lodge rooms are well adapted for lecture theaters and the anterooms can be readily converted into laboratories and administrative offices.

## BUCHAREST

*(From Our Regular Correspondent)*

April 5, 1935.

### Limiting Students at the Universities

A few months ago a new law was sanctioned by the chamber of deputies which limits the employment of members of the minority nationalities to 10 per cent of the Rumanian workers in any given commercial enterprise. Some extreme nationalists are now trying to extend this principle also to the granting of medical and legal diplomas. This new kind of numerus clausus is already being practiced in the faculties of medicine. In fact, the number of minority students is even less than 10 per cent. Some Rumanian newspapers attacked Professor Martinescu, dean of the medical faculty of the Cluj University, for being too lenient in the enrolment of minority and chiefly Jewish first year students. The dean explained his attitude as follows: The professorial board resolved to admit 150 first year students. The applicants have to write a thesis in physicochemistry, natural history and hygiene. Out of 241 applicants, all of whom duly passed the examinations, ninety have been rejected. The number of first year students, including repeaters, was 233, of whom 144 were Rumanians, thirty-nine Hungarians, thirty-six Jews, eleven Germans, two Bulgarians and one Albanian. The dean remarked that applicants of Rumanian nationality, without regard to the examination, all could enrol. He gave expression to his conviction that the universities should be thrown wide open, so that every one wishing to study should be able to do so.

### The Strike of Bucharest Medical Students

A short time ago the students of the legal faculty of the Bucharest University went on strike, to demonstrate against the excessively high examination fees. The medical students followed suit, as they have to pass more examinations than the law students, and the examination fees are higher. They stopped going to lectures, so that the professors found only empty benches. They demand a system like that prevailing in France; namely, in lieu of numerous final examinations to have a final examination for the doctor's degree after the completion of all university semesters. The minister of public instruction is inclined to make a radical change on the present examination system. At Bucharest University, medical students now have to pass altogether thirty-eight examinations during the prescribed six years study; yet, at the completion of the studies, examinations have to be passed anew even on theoretical subjects.

The dean of the faculty of medicine announced to the students that the board of professors feels inclined to comply with their request and to pass their appeal, for approval, to the

ministry. The students said that they are not satisfied with promises but will continue to strike until their appeal is definitely settled by an official enactment. Thereupon the professorial board appealed to the ministry for a decision, and the students stopped striking.

### A Reward for Practicing in Villages

At a recent meeting of the chamber of deputies, the draft of a bill to provide villages with doctors was voted. Ioanitescu, late minister of labor and public health, said that while in cities the ratio of physicians is 1:375 of population, in villages one doctor provides medical service to between 25,000 and 30,000. The present minister of public health stated that in some places there is one doctor to twenty or twenty-five villages and that distances are so great that if the doctor is called to a patient it requires a full day for the visit, during which time the rest of the people are without medical service. The roads are bad and he is dependent on horse and carriage. The mortality rate in children is the highest in Europe. Our duty, said the minister, is to induce physicians to leave the towns and settle in villages. There are two solutions to this question. Either to increase the number of village doctors by extending social insurance to the villages or to give a premium to physicians who settle in villages and who pledge themselves to remain there.

### Faculty of Medicine Closed

At the faculty of medicine of the Bucharest University, antisemitic movements gained such headway that the board of the faculty saw it necessary to prevent further disturbances, to suspend the holding of lectures until April 10; that is, six days from today. The board of professors told the instigators that if they do not stop demonstrations the faculty of medicine will be closed for a longer period and then they will lose the present semester. The board discussing the question of the memorandum of the non-Jewish students in regard to the introduction of the "numerus nullus" resolved to put the leaders of the movement before the disciplinary committee. Several antisemitic incidents occurred.

### A New Law Against Adultery

The new Rumanian penal code includes the crime of adultery. The text of the law is as follows: Extramarital sexual relation of either member of a married couple is considered the crime of adultery, for which the punishment ranges from one to twelve months in prison; but, if the relation is carried on after the court trial the punishment is from six to twenty-four months in prison. Criminal process can be started only on the complaint of the innocent mate. The innocent party may pardon his spouse at any phase of the trial, even subsequent to the announcement of the punishment.

## Marriages

Benjamin Franklin Cozart to Miss Helen Rebekah Newell, both of Reidsville, N. C., May 18.

Gedeon Aram Belhumeur, Gardner, Mass., to Miss Rose Lagueux of Levis, Que., April 30.

Jack Alexander McKenzie, Jackson, Tenn., to Miss Edith Woodard of Miami, Fla., May 18.

Philip David Stout, Bristol, Va., to Miss Julia Holston Slack of Bristol, Tenn., April 17.

Raymond D. Lublin, East Hartford, Conn., to Miss Anne Hurowitz of Hartford, April 14.

Paul Q. Baker, Axtell, Neb., to Miss Dorothy De Armon of Cheyenne, Wyo., April 23.

Clarence Dixon Fowler to Miss Mary Susan Prim, both of Atlanta, Ga., April 19.

Lee B. Word, Los Angeles, to Miss Allethia Averett of Atlanta, Ga., April 13.

Edward Hollander to Miss Ruth E. Fineman, both of New York, recently.

## Deaths

**Jesse Leroy McElroy,** Neuilly-Sur-Seine, France; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; since 1933 superintendent of the American Hospital in Paris; served during the World War; formerly superintendent of the hospitals (Memorial, Dooley and St. Philip) of the Medical College of Virginia, Richmond; St. Luke's Hospital, Chicago; the University Hospital, Iowa City, Iowa; Ancker Hospital, St. Paul, and St. Mark's Hospital, New York; aged 50; died suddenly, May 5, of heart disease.

**Harry Winfred Goodall** ● Boston; Harvard University Medical School, Boston, 1902; fellow of the American College of Physicians; served during the World War; at one time lecturer on digestive diseases, Dartmouth Medical School, Hanover, N. H., and instructor in chemistry at his alma mater; on the staffs of the New England Deaconess Hospital, and the New England Baptist Hospital, Boston, the Burbank Hospital, Fitchburg, the Chelsea (Mass.) Hospital and the Framingham (Mass.) Union Hospital; aged 58; died, April 17.

**Wilbur Hawley Gilmore** ● Chicago; Jefferson Medical College of Philadelphia, 1903; member of the Radiological Society of North America; served during the World War; member of the professional committee for medicine, Illinois Department of Registration and Education; secretary of the Illinois State Medical Society, 1913-1922; attending roentgenologist to the Illinois Masonic Hospital and the Illinois Eye and Ear Infirmary; aged 55; died, April 27, of coronary thrombosis.

**Henry Burtis Costill** ● Trenton, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1882; member of the House of Delegates of the American Medical Association, 1918, 1925 and 1927; formerly director of the New Jersey State Department of Health; past president of the Medical Society of New Jersey and the Mercer County Medical Society; president of the staff of St. Francis Hospital; aged 75; died, April 27, of cerebral hemorrhage.

**George Robert Elliott** ● New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881; formerly assistant professor of clinical orthopedic surgery at his alma mater; fellow of the American College of Surgeons; consulting orthopedic surgeon to the Montefiore Hospital; attending orthopedic surgeon to St. Francis and St. Joseph's hospital; died, April 27.

**Frank J. Holdsworth,** Traverse City, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; member of the Michigan State Medical Society; member of the American Academy of Ophthalmology and Oto-Laryngology; on the staff of the James Decker Munson Hospital; aged 60; died, April 4, in the Presbyterian Hospital, Chicago, of coronary thrombosis.

**Ernest Mozart Roseberry,** Neosho, Mo.; Chicago Physio-Medical Institute, 1890; Barnes Medical College, St. Louis, 1904; member of the Missouri State Medical Association; deputy state health commissioner; formerly member of the state legislature; served during the World War; aged 68; on the staff of the Sale Hospital, where he died, March 21, of angina pectoris.

**Nelson Wilson Janney,** San Diego, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; member of the American Society of Clinical Investigation; served during the World War; formerly on the staff of the New York Post Graduate Hospital, New York; aged 53; died, April 29, of chronic nephritis and arteriosclerosis.

**Henry Aaron Norden,** Chicago; Rush Medical College, Chicago, 1889; formerly junior dean and professor of medicine, Loyola University School of Medicine; school health officer of Chicago, 1914-1923; fellow of the American College of Physicians; aged 68; died, May 1, of hemiplegia, hypertension and arteriosclerosis.

**Edward Nathan Schoolman,** Chicago; Chicago College of Medicine and Surgery, 1914; member of the Illinois State Medical Society; at one time medical director of the Elgin (Ill.) State Hospital, on the staff of the Michael Reese and Mount Sinai hospitals; aged 41; died, May 15, of coronary thrombosis.

**Jay Sproat McCulloch,** Wellsville, Ohio; Ohio Medical University, Columbus, 1904; member of the Ohio State Medical Association; for many years member of the board of education; at one time bank president; health officer of Wellsville; on the staff of the East Liverpool (Ohio) City Hospital; aged 59; died, April 24.

**Isaac Wilsey Traverse,** Fort Madison, Iowa; Keokuk (Ia.) Medical College, 1893; member of the Iowa State Medical Society; past president of the Lee County Medical Society; served during the World War; on the staff of the Sacred Heart Hospital; aged 62, died, April 12, of cerebral hemorrhage.

**James Archibald Orbison** ● Major, M. C., U. S. Army, North Bergen, N. J.; University of Illinois College of Medicine, Chicago, 1913; served during the World War; appointed first lieutenant in the medical corps of the U. S. Army in 1917 and was promoted major in 1929; aged 47; died, April 24.

**Edward Harvey Griswold,** Peru, Ind.; University Medical College of Kansas City, 1891; member of the Indiana State Medical Association; fellow of the American College of Surgeons; aged 80; formerly medical director of the Wabash Railroad Employees Hospital, where he died, April 5.

**Clesson Beckwith** ● Lieut., M. C., U. S. Army, Corning, Iowa; State University of Iowa College of Medicine, Iowa City, 1932; entered the medical corps of the U. S. Army as a first lieutenant in 1933; aged 29; died, April 4, in Fort Des Moines, of pulmonary embolism following an appendectomy.

**Ben Hicks Metcalf** ● Ruskin, Fla.; Harvard University Medical School, Boston, 1894; member of the Massachusetts Medical Society; served during the World War; in 1906 he established the Metcalf Hospital, now known as the Winthrop Community Hospital; aged 64; died, March 31.

**Thomas Paul Martin** ● Taos, N. M.; College of Physicians and Surgeons, Baltimore, 1887; connected with the Indian Service; health officer of Taos County; served during the World War; aged 70; died, April 11, in St. Vincent's Hospital, Santa Fe, of cerebral hemorrhage.

**George Potter Edwards,** Nashville, Tenn.; Rush Medical College, Chicago, 1882; at one time clinical professor of neurology, dermatology and electrotherapy, Vanderbilt University School of Medicine; aged 76; died, April 29, of acute multiple arthritis and senility.

**Roger Marvin Griswold,** Kensington, Conn.; University of the City of New York Medical Department, 1875; member of the Connecticut State Medical Society; past president of the American Association for Clinical Research; aged 82; died, April 28.

**Eugene Ballantyne Sharpe,** Manti, Utah; Jefferson Medical College of Philadelphia, 1898; member of the Utah State Medical Association; served during the World War; aged 60; died, April 29, of chronic myocarditis and congenital polycystic kidney.

**Clifford Henry Griffin** ● Providence, R. I.; Harvard University Medical School, Boston, 1898; for many years police surgeon; formerly member of the school committee and state legislature; aged 64; died, April 1, in the Jane Brown Hospital.

**James Wallace Horner,** Alma, Mo.; Jefferson Medical College of Philadelphia, 1877; member of the Missouri State Medical Association; past president of the Lafayette County Medical Society; aged 81; died, March 15, of hypostatic pneumonia.

**James Pringle Elliott,** Laguna Beach, Calif.; Dartmouth Medical School, Hanover, N. H., 1887; University of the City of New York Medical Department, 1887; aged 82; died, February 28, of cerebral endarteritis and arteriosclerosis.

**David Noble Koe** ● Gladstone, Mich.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1890; health officer of Gladstone; formerly member of the school board; aged 74; died, March 6, of pneumonia and influenza.

**James Edgar Wheat,** San Fernando, Calif.; University of Southern California College of Medicine, Los Angeles, 1900; member of the California Medical Association; aged 74; died, February 9, of diabetes mellitus and acute nephritis.

**Field Vernon Gremillion,** Alexandria, La.; Tulane University of Louisiana Medical Department, New Orleans, 1906; member of the Louisiana State Medical Society; aged 56; died suddenly, March 27, at his home in Pineville.

**John William Hutton,** Newton, Ill.; Barnes Medical College, St. Louis, 1899 and 1900; member of the Illinois State Medical Society; county coroner; aged 57; was killed, March 26, when he was struck by an automobile.

**William Noah Elkins** ● Junction City, Ark.; University of Tennessee Medical Department, Nashville, 1908; past president of the Union County Medical Society; aged 51; died, March 12, of cardiorenal disease.

**William Burnam Godard,** Macon, Ga.; University of Georgia Medical Department, Augusta, 1906; aged 53; died, March 10, in the R. F. Strickland and Son Memorial Hospital, Griffin, of lobar pneumonia.

**Rufus Albert Hoover,** Hope, Ind.; Bennett Medical College, Chicago, 1912; member of the Indiana State Medical Association; county health officer; aged 62; died, March 22, of carcinoma of the stomach.

**Travis Shaw Griffith,** Georgetown, Texas; Harvard University Medical School, Boston, 1932; aged 28; intern at the Charles V. Chapin Hospital, Providence, R. I., where he died, March 30, of meningitis.

**Thomas Barber,** Phillipsburg, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; state senator; aged 66; died, April 29, in the Lankenau Hospital, Philadelphia, of bronchopneumonia.

**Charles H. Edwards,** Terre Haute, Ind.; Cincinnati College of Medicine and Surgery, 1885; member of the Indiana State Medical Association; aged 76; died, May 6, in the Union Hospital of pneumonia.

**Clarence Maitland Service,** Springfield, Ill.; Jenner Medical College, Chicago, 1902; inspector in the department of public works for the state of Illinois; aged 61; died, May 3, of gastric carcinoma.

**Louis Wilson Talbott,** Elkins, W. Va.; University of Maryland School of Medicine, Baltimore, 1883; member of the West Virginia State Medical Association; aged 79; died, March 17.

**Norval Cobbe Vaughan,** Cincinnati; Howard University College of Medicine, Washington, D. C., 1896; aged 63; died, April 20, of coronary thrombosis and angina pectoris.

**Pierce Edward Somers,** Portland, Maine; Harvard University Medical School, Boston, 1903; aged 59; died, February 26, of hypertensive heart disease, nephritis and uremia.

**Francis Alexander Robert Gow,** Greenwich, N. S., Canada; Trinity Medical College, Toronto, Ont., 1889; died, February 13, in the Camp Hill Hospital, Halifax.

**R. M. Manley,** Cleveland; Western Reserve University Medical Department, Cleveland, 1904; served during the World War; aged 58; died, March 21, of heart disease.

**Levi Brook Hirst** ● Camden, N. J.; Jefferson Medical College of Philadelphia, 1894; on the staff of the Cooper Hospital; aged 74; died, March 6, of cerebral hemorrhage.

**Herman Groth** ● Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1902; aged 65; died, March 21, in St. John's Hospital, of carcinoma of the colon.

**Hugh Gerald Williams,** Vernon, B. C., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1894; aged 66; died, February 16, of valvular heart disease.

**Stephen James O'Brien** ● Chicago; Northwestern University Medical School, Chicago, 1907; aged 54; died, May 7, of myocarditis and chronic nephritis.

**Willis E. Hosman** ● Akron, Ind.; Eclectic College of Physicians and Surgeons, Indianapolis, 1892; aged 65; died, March 16, of coronary thrombosis.

**Alfred T. Bennett,** Louisville, Ky.; Kentucky School of Medicine, Louisville, 1861; Civil War veteran; aged 94; died, April 23, of bronchopneumonia.

**Robert John Young** ● Snow Shoe, Pa.; Temple University School of Medicine, Philadelphia, 1929; aged 34; died, April 22, of heart disease.

**Charles H. Wallace,** Dallas, Texas (registered by Texas State Board of Medical Examiners under the Act of 1907); aged 72; died, February 26.

**Alpheus Hamilton Gans,** Abilene, Kan.; University of Wooster Medical Department, Cleveland, 1870; aged 88; died, February 9, of senility.

**John Hackworth Wood,** Sweet Water, Ala.; Medical College of Alabama, Mobile, 1886; aged 70; died, February 23, of lobar pneumonia.

**Patrick J. Flannery,** Waverly, N. Y.; Baltimore Medical College, 1895; died, March 10, of chronic endocarditis and arteriosclerosis.

**David Charles Wybourn** ● Ossian, Ind.; Fort Wayne College of Medicine, 1902; aged 56; died, March 23, of acute appendicitis.

**Ambrose C. Clifford Jr.,** Bedford, Ind.; Kentucky School of Medicine, Louisville, 1893; aged 77; died, March 13, of pneumonia.

**Emilio Raphael Tobia,** Los Angeles; Bennett College of Eclectic Medicine and Surgery, Chicago, 1910; aged 60; died, February 9.

**Henry M. Hunt,** Chicago; St. Louis College of Physicians and Surgeons, 1887; aged 85; died, April 16, of myocarditis.

**John Galen Locke,** Denver; Denver Homeopathic College, 1904; aged 63; died, April 1, of coronary thrombosis.

# Bureau of Investigation

## MISBRANDED "PATENT MEDICINES"

### Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

**Foster's White Camphor Liniment.**—Keystone Manufacturing Co., South Boston, Va. Composition: Essentially volatile oils including camphor, with ammonia (about 2 per cent), soap and water. Fraudulent therapeutic claims.—[*N. J. 21232; August, 1934.*]

**Mineralcrystals.**—Mineral Wells Crystal & Water Co., Mineral Wells, Texas. Composition: Essentially dried Glauber's salt (over 98 per cent), with small amounts of common salt, and the carbonates of calcium, magnesium and sodium. For rheumatism, neuritis, stomach, kidney and bladder disorders, etc. Fraudulent therapeutic claims.—[*N. J. 21236; August, 1934.*]

**Dip O.**—McCabe Drug Co., Fargo, N. D. Composition: Essentially plant drug extracts, menthol, tar, chloroform, sugar and water. For coughs, bronchitis, asthma, catarrh, fever, etc. Fraudulent therapeutic claims.—[*N. J. 21238, August, 1934.*]

**Sauer's Horse and Bone Oil.**—C. F. Sauer Co., Richmond, Va. Composition: Essentially wintergreen, camphor, menthol, camphor oil and eucalyptol, colored green. For rheumatism, tumors, toothache, etc. Fraudulent therapeutic claims.—[*N. J. 21239; August, 1934.*]

**Astro Asthma Relievers.**—Superior Medicated Products Corporation, New York. Composition: Stramonium leaves in cigaret form. For asthma, bronchitis, catarrh, sore throat, etc. Fraudulent therapeutic claims.—[*N. J. 21245; August, 1934.*]

**Apinol.**—Apinol Corporation, Wilmington, N. C. Composition: Essentially pine oil. For sores, burns, pyorrhea, boils, blood poison, lockjaw, typhoid, etc. False therapeutic claims.—[*N. J. 21248; August, 1934.*]

**Foulorine.**—Fowler Medicine Co., Memphis, Tenn. Composition: Sulphonated oil, turpentine and methyl salicylate. For kidney, bladder and rheumatic disorders, indigestion, diabetes, dropsy, etc. Fraudulent therapeutic claims.—[*N. J. 21249; August, 1934.*]

**Lan's Antiseptine Powder.**—Moore & Co., Inc., Worcester, Mass. Misbranded because not a germicide and contained no aluminum sulphate or oxquinoline sulphate, as claimed.—[*N. J. 21250; August, 1934.*]

**Idan Ha Lithia Water.**—Idan Ha Mineral Water Co., Soda Springs, Idaho. Composition: Essentially a moderately mineralized water containing chiefly magnesian limestone but very little lithia; hence the term "Lithia Water" was false and misleading, constituting misbranding.—[*N. J. 21501; August, 1934.*]

**H R Sea Pink Wonders.**—M. R. Sea Co., Inc., Boston. Composition: Tablets each containing 2.5 grains of acetphenetidin and 3.5 grains of aspirin. For sciatica, lumbago, earache, toothache and periodical pains. Fraudulent therapeutic claims.—[*N. J. 21502; August, 1934.*]

**Johnson's (Clark) Syrup.**—Kells Co., Inc., Newburgh, N. Y. Composition: Essentially plant drug extracts including aloe, with alcohol, sugar and water. For stomach, liver and bowel disorders, etc. Fraudulent therapeutic claims.—[*N. J. 21503; August, 1934.*]

**Royco Antiseptic Solution.**—National Medical Products Co., Los Angeles. Composition: Essentially small amounts of boric acid, volatile oils including wintergreen and thymol, with oxyquinoline sulphate and water. For "feminine hygiene," pyorrhea, sores, body rash, etc. Not antiseptic when used as directed. Fraudulent therapeutic claims.—[*N. J. 21507; August, 1934.*]

**Espiritu Water No. 1.**—Espiritu Water Co., Safety Harbor, Fla. Composition: A moderately mineralized water chiefly containing common salt, with other mineral substances found in ground waters. For stomach disorders, Bright's disease, diabetes, dropsy, psoriasis, etc. Fraudulent therapeutic claims.—[*N. J. 21508; August, 1934.*]

**Almklov's Eczema Specific.**—S. Almklov, Cooperstown, N. D. Composition: Essentially zinc oxide (11 per cent), ammoniated mercury (9 per cent) and small amounts of camphor and menthol, in a petrolatum base. Fraudulent therapeutic claims.—[*N. J. 21509; August, 1934.*]

**Yerbavida.**—Yerbavida Co., Los Angeles. Composition: Essentially an American species of the plant ephedra. Cure-all and "rejuvenator." Fraudulent therapeutic claims.—[*N. J. 21511; August, 1934.*]

**Compound Epsom Salt Tablets.**—Hance Bros. & White, Inc., Philadelphia. Composition: In each tablet 5.1 grains of epsom salt and 1/5 grain of phenolphthalein. Adulterated because below professed standard of purity and because name "Compound Epsom Salt Tablets" was false and misleading in that phenolphthalein was the active ingredient.—[*N. J. 21512; August, 1934.*]

**Stuart's Dyspepsia Tablets.**—F. A. Stuart Co., Marshall, Mich. Composition: Large tablets essentially calcium carbonate, magnesium carbonate, ginger, sugar and starch; small tablets essentially calcium carbonate, plant drug extracts including red pepper, and a bitter drug, with sugar and starch. For dyspepsia, stomach ulcers, bad breath, heartburn, etc. Fraudulent therapeutic claims.—[*N. J. 21513; August, 1934.*]

**Lady Grace Mineral Crystals.**—Grace Natural Mineral Co., Omaha. Composition: Essentially crystallized Glauber's salt with a trace of common salt. For obesity, constipation, rheumatism, Bright's disease, etc. Fraudulent therapeutic claims.—[*N. J. 21516; August, 1934.*]

**Key Tasteless Cod Liver Extract Tablets.**—Key Laboratories, Chicago. Composition: In each tablet 8.3 milligrams of chloroform-soluble material including fatty material and a bitter drug extract, in a mixture of starch, sugar and talc. For "building up." Fraudulent therapeutic claims.—[*N. J. 21518; August, 1934.*]

**Garvin's Remedies.**—Pest-U-Di Chemical Co., Chicago. Composition: Essentially boric acid, potassium permanganate and water. For "female weakness," diphtheria, canker, etc. Fraudulent therapeutic claims.—[*N. J. 21519; August, 1934.*]

**Manam Sylados.**—Natural Health Products Co., New York. Composition: About 80 per cent Plantago ovata and about 20 per cent of brownish particles containing a considerable proportion of ground carob bean, cacao, a reducing sugar such as lactose, and a very small amount, if any, of dextrin. Misbranded because of false and misleading claims as to composition and because of fraudulent therapeutic claims for efficacy in diarrhea, stomach hyperacidity, etc.—[*N. J. 21521; August, 1934.*]

**Savol.**—Savol Chemical Co., Mercer, Pa. Composition: Essentially phenols (including 5.5 per cent of carbolic acid), soap and water. For infections, catarrh, hay fever, etc. Fraudulent therapeutic claims.—[*N. J. 21522; August, 1934.*]

**Peoples Sore Throat Gargle.**—Peoples Drug Stores, Washington, D. C. Composition: Essentially potassium chlorate, ferric chloride, glycerin, alcohol and water. Fraudulent therapeutic claims.—[*N. J. 21523; August, 1934.*]

**Peoples Children's Cough Syrup.**—Peoples Drug Stores, Washington, D. C. Composition: Essentially plant drug extracts including ipecac, with flavoring materials, alcohol, sugar and water. Fraudulent therapeutic claims.—[*N. J. 21523; August, 1934.*]

**Ingraham's Macedonian Oil.**—Gerlach Medicine Co., Wooster, Ohio. Composition: Essentially a nonvolatile oil with 2 per cent of volatile oils including eucalyptol, menthol, camphor and wintergreen. For rheumatism, catarrh, diphtheria, liver and kidney troubles, piles, asthma, etc. Fraudulent therapeutic claims.—[*N. J. 21525; August, 1934.*]

**Rinex.**—Rinex Laboratories Co., Cleveland, Ohio. Composition: Capsules each containing acetphenetidin 1 grain, aspirin 2.3 grains, quinine 0.17 grain, camphor, and a laxative drug; and tablets each containing 4 grains of baking soda and starch. For asthma, hay fever, catarrh, colds, etc. Misbranded because acetphenetidin not properly declared on label and because of fraudulent therapeutic claims.—[*N. J. 21526; August, 1934.*] This nostrum was discussed in detail in THE JOURNAL, April 11, 1925 and in *Hygeia* for June 1929.

**Electrovita Mineralized Water.**—Electrovita Co., Inc., Norwalk, Ohio. Composition: Essentially diluted lime water. "To combat harmful acids and assist nature in the elimination of waste matter." Fraudulent therapeutic claims.—[*N. J. 21527; August, 1934.*] This "patent medicine" was the subject of an article in THE JOURNAL, Jan. 23, 1932.

**Con's Liniment.**—Hoover Liniment Co., Carlisle, Ind. Composition: Essentially turpentine oil, an iodine compound, linseed oil, a petroleum product and carbolic acid. Fraudulent therapeutic claims.—[*N. J. 21528; August, 1934.*]

**Carpathian Herb Tea.**—Polonia Medicine Co., Philadelphia. Composition: Essentially senna leaves, juniper berries, chamomile flowers, fennel seed, peppermint and sweet orange peel. Cure-all. Fraudulent therapeutic claims.—[*N. J. 21530; August, 1934.*]

**French's White Pine and Cherry Compound Cough Syrup.**—Atlantic Sales Corporation, Rochester, N. Y. Composition: Essentially plant drug extracts including wild cherry and ipecac, with ammonium chloride, menthol, alcohol, sugar and water. Fraudulent therapeutic claims.—[*N. J. 21532; August, 1934.*]

**Rogers' Headache Soda.**—Rogers Drug Co., Memphis, Tenn. Composition: Essentially acetanilid (3.3 grains per powder), caffeine and baking soda. Fraudulent therapeutic claims.—[*N. J. 21533; August, 1934.*]

**Aromist.**—T. J. Holmes Co., Inc., Chartley, Mass. Composition: Essentially volatile oils (about 13 per cent) including lavender and cardamom oils, menthol, camphor and eucalyptol, with alcohol and small amounts of glycerin and water. For sore throat, skin infections, influenza, etc. Fraudulent therapeutic claims.—[*N. J. 21534; August, 1934.*]

**Autotoxine.**—Autotoxine Co., Ottawa, Kan. Composition: Essentially epsom salt in water, sweetened with saccharine. For rheumatism, headache, sour stomach, neuralgia, etc. Fraudulent therapeutic claims.—[*N. J. 21536; August, 1934.*]

**Sleepy Salts.**—Sleepy Water Co., Chicago. Composition: Essentially Glauber's and epsom salts with a small amount of common salt. For obesity, rheumatism, nervous disorders, etc. Fraudulent therapeutic claims.—[*N. J. 21537; August, 1934.*] This nostrum was the subject of an article in this department of THE JOURNAL, May 5, 1934.

**Pulvis Alkastis.**—Lafayette Pharmacal, Inc., Lafayette, Ind. Composition: Essentially calcium carbonate, magnesium carbonate, bismuth subcarbonate, cerium oxalate and a small amount of menthol. For gastric ulcer, acute gastric catarrh, etc. Fraudulent therapeutic claims.—[*N. J. 21540; August, 1934.*]

**Griswold's Family Salve or Plaster.**—Sisson Drug Co., Hartford, Conn. Composition: Essentially lead oleate and rosin. For boils, wounds, ulcers, hard tumors, etc. Fraudulent therapeutic claims.—[*N. J. 21541; August, 1934.*]

**Nash's Purgative Tablets.**—Nash Bros. Drug Co., Jonesboro, Ark. Composition: Essentially mercurous chloride, phenolphthalein and an extract of a laxative plant drug. Fraudulent therapeutic claims.—[*N. J. 21543; August, 1934.*]

**Nash's Headache Tablets.**—Nash Bros. Drug Co., Jonesboro, Ark. Composition: Essentially acephenetidin, aspirin, phenolphthalein and caffeine. Fraudulent therapeutic claims.—[*N. J. 21543; August, 1934.*]

## Correspondence

### AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

*To the Editor:*—I was interested in reading the report of the Council on Medical Education and Hospitals as published in THE JOURNAL, March 30. I was particularly interested in comments relative to obstetrics and the report of the Committee on Maternal Mortality of the New York Academy of Medicine. You are probably cognizant of the volume published by the White House Conference on Child Health and Protection which deals with the question of obstetric education. This report was rather carefully prepared after a comprehensive study and it should be of assistance to the Council on Medical Education and Hospitals as well as others who are interested in improving obstetric education in this country.

The comments in paragraph 3, page 1065, were of interest. I think that the Council is under some misapprehension, since the American Board of Obstetrics and Gynecology does not attempt to draw an arbitrary line between surgery of the reproductive organs and other contents of the abdominal cavity. We do attempt to draw a line between men who practice abdominal surgery in the male and in the female. The gynecologist who invades the abdomen does so primarily to deal with pelvic conditions. The general abdominal surgeon, especially in dealing with the male patient, usually invades the abdomen for some condition above the pelvic level. The board expects the qualified obstetrician and gynecologist to be able to deal with surgical conditions in the abdomen, but we do not expect him to invade the abdomen as a part of his routine practice, except for gynecologic conditions. The board has therefore ruled that a man accepting male patients in his practice is not eligible for certification by the board. He must be a specialist in obstetrics and/or gynecology.

Furthermore, the American College of Surgeons has already designated competent specialists in the various surgical fields. Their selection is based on the theory that the best available man in the community should be so designated. Our board has taken the position that a man must prove himself to be a qualified and bona fide specialist without reference to his geographic location.

Lastly, I should like to call your attention to the fact that the men who constitute these special boards are facing the facts. They are men who are in actual practice and know something of the problems of the medical profession from daily contact with them. So far as I know, the Council criticized and more or less condemned the action of our board without making any direct attempt to discover from its members what its attitude is. So far as my personal contact with the members of the board is concerned, I believe that no one of them feels that the final attitude of the board is crystallized and unchangeable. The principal idea of the board was that the specialty of obstetrics and gynecology should be placed on a higher plane in this country than it has occupied in the past.

The members of the board are selected by various special societies, including the section of the American Medical Association, presumably for their fitness to deal with these problems. The board members endeavor to represent and interpret the opinions of the special societies which they represent, and also of those who have been certified as specialists by the board.

While I am a member of the board, this letter in no way represents any action or conference with other members of the board. I am sure the board is attempting to take a fair attitude toward all, and so far as any actions taken by the board with which I am connected are concerned, I fail to see that they have been actuated either by favoritism or by prejudice.

FRED L. ADAIR, M.D., Chicago.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### MYCOTIC INFECTIONS IN CANNERIES

*To the Editor:*—In my city there is a packing plant where tomatoes, beans and corn are cooked in various ways, packed in hot cans and prepared in differing types of marketable products. Meats as well are now being cooked and packed. Every few days a worker comes in with a swollen finger from this plant. He may or may not have sustained a scratch or bruise before the swelling begins. Sometimes there is a blister where the swelling is greatest. From day to day these fingers grow worse. The swelling will extend to the tip of the finger and back to the hand. It becomes tense and the feel of the finger is hard. Blistering may extend over much of the swollen area or a lesser amount but later it will extend over the entire swollen area. The adjoining finger or fingers may become involved after three to ten days, though not so seriously as the first. The blistering and infiltration may extend even into the hand. The pain due to the tense swelling is marked. There will probably be a focal spot of greater intensity where the swelling is worst and some necrosis will be found under a degenerating blister. One will feel inclined to drain at this point, but so far I have never got anything except blood and a little serum. Necrosis continues with or without drainage (incision) over a wide area, sometimes from the tip of the finger to the hand. Sloughing will expose the sheaths and ligaments and extend down into the joints, where it may expose the bones. A large wide open necrotic sore is the result. It heals slowly. The whitened surfaces of the sore make one fear that red granulations will never appear. The sore seems forever in casting off the necrotic detritus and in bringing to light living tissues. I have opened these fingers early and late, always regretting that I opened them at all, and now I do not drain but allow them to drain through their own efforts. Hot applications do not even relieve the pain very much and certainly do not greatly shorten the course. What causes these "juice" sores to behave so strangely? What is the proper treatment?

E. O. HARBOLD, M.D., Marion, Ind.

ANSWER.—The lesions described at once suggest the presence of virulent mycotic parasites. Lately a new fungus has been described by Thiene as the causative agent of an occupational disorder among workers in canneries. This new organism resembles Monilia and Parasaccharomyces but as yet this organism has not been finally classified. Moniliasis is itself a distinct possibility. The treatment for these fungic infections is the same as for mycotic lesions in general. Roentgen therapy has some merit. These conditions are more particularly associated with vegetable canneries, but it is observed in the query that meats likewise are packed. "Butchers' dermatitis" is a well established occupational disease entity and perhaps has best been described by Schwartz (*J. Indust. Hyg.* **13**:233 [Sept.] 1931). His summary is as follows:

1. Butchers' dermatitis, characterized principally by erythematous areas on the hands followed by the appearance and subsequent eruption of pinhead vesicles, and accompanied by considerable itching as a symptom, is an occupational disease largely affecting butchers and inspectors who handle freshly killed carcasses.

2. The lesions, which first appear on the webs of the fingers and spread to the sides and backs of the fingers and to the backs of the hands as far as the wrists, may extend up the arms as far as the elbows and in exceptional cases may spread to other parts of the body, such as the chest, abdomen, legs and face.

3. The disorder does not appear immediately on the exposure of susceptible persons but usually makes its appearance after an initial period of exposure varying from three to thirty days, during which time susceptible persons presumably become sensitized to the tissues and fluids of swine, cattle and sheep.

4. While certain persons make a rapid recovery following the first attack, with or without treatment, others develop repeated attacks while the exposure to the inciting cause is continued; in some persons the susceptibility lasts for several years.

5. The available evidence indicates that many seasoned workers lose their susceptibility to the disorder in the course of time.

6. While most susceptible persons appear to become fairly equally sensitized to the various classes of meat food animals that are slaughtered in abattoirs, certain persons exhibit a specific susceptibility to one or two classes of these animals and are unaffected by contact with others.

7. The dermatitis may be checked by various local applications commonly used in treating related skin troubles in which there are no constitutional symptoms.

8. On the basis of available evidence, frequent washing of the hands in cold running water, thorough scrubbing of the hands with soap and brush at the end of the day's work, and coating the hands with petrolatum or other ointments before beginning the day's work are in most cases effective prophylactic procedures.

Schwartz's paper indicates the absence of precise knowledge of the causative agent of "butchers' dermatitis," but again it is believed that fungi of divers sorts may be the cause of some outbreaks. Different forms of mycotic organisms probably are responsible for the variations in severity, incidence and characteristics. Suggestions as to treatment are scarcely warranted in this situation until greater information is available as to the cause of the disorder. Chief emphasis at this time is placed on the desirability for carrying out microscopic examinations of skin scrapings, fluid discharges and culture materials for the purpose of establishing the exact nature of the offending parasite.

## TREATMENT OF PYELITIS IN PREGNANCY

*To the Editor:*—I was called in to see a pregnant woman, aged 19, a primipara, at the sixth month. She was complaining of pain of several days' duration in her back; also fever, nausea and vomiting. The pain was sharp and colicky in character and did not radiate. The temperature was 103.2 F., the pulse 120 per minute, and respiration 22 per minute. The blood pressure was 122 systolic, 62 diastolic. Physical examination revealed nothing of note except tenderness in both costovertebral angles and in the lower midline of the abdomen. A diagnosis of pyelitis of pregnancy was made and confirmed by a urine examination. The latter showed an abundance of pus and moderate albumin, but no casts or red cells. Alkalinization of the urine with sodium bicarbonate was attempted for three days, with no improvement either in the severity of the pain or elevation of temperature. Urophosphate tablets were then given, one tablet three times a day for four days, without effect. The pain became more severe, so that there was a suspicion of kidney stone. The patient was removed to a hospital, where a flat roentgenogram of the abdomen was made. No stones were visualized. The urine still showed only pus and albumin and no red cells or casts. The white cell count was 13,000. It was decided to wash the kidney pelves through ureteral catheters. A consultant suggested first trying intensive methenamine therapy. In four days the temperature was normal, the pain relieved, and the patient sent home although the urine still showed some pus. Previous to the patient's discharge from the hospital, the urine had shown some red cells and an occasional cast. This was attributed to the urophosphate compound. The latter was therefore discontinued and pyridium was substituted. The casts and red cells cleared up. At home, two urophosphate tablets were given three times a day for several days and then a course of pyridium, two tablets three times a day. The temperature shot up suddenly to 104 on the day after discharge from the hospital. It gradually dropped to normal after a few days. With reduction in the dose of the urophosphate compound, however, the temperature has risen again. The urine has continued to show pus and albumin (but no casts or red cells) although in lesser amounts. The temperature will be subnormal or normal in the morning and rise to about 102 in the afternoon. Attempts to get the patient up in bed result in an exacerbation of the condition. It has now been over three weeks since I first saw the patient and the improvement has been only slight. The patient is extremely desirous of having her baby and would like to avoid returning to the hospital for the ureteral washing for financial reasons. The latter condition, however, can be surmounted. I would like your opinion regarding the handling of this patient in respect to the pyelitis and the remainder of this pregnancy, and in preparation for future pregnancies. I might add in closing that there is now no pain in the back. The patient has suffered considerably from flatulence. A light high protein diet was given in view of the lack of any toxic symptoms, and small salt water enemas were given. This seems to have relieved the condition. Please omit name. M.D., District of Columbia.

Answer.—In this case the treatment carried out represents the latest known in pyelitis. The restraint in the use of the ureteral catheter is commendable because of the acuteness of the disease but, now that the inflammation is in a more subacute stage, it might be desirable to put a catheter into the kidney pelvis and leave it there for several days, in the meantime keeping up alternating alkaline and acid treatment. One need not fear toxemia from a high protein ketogenic diet, which lately is being much used in pyelitis. Under the acid treatment, liquids should be restricted. Under the alkaline they should be greatly increased, the idea being to wash the kidney pelvis.

Change of posture is very important and the patient should assume the knee-chest or elevated Trendelenburg or alternating elevated Sims position frequently and for considerable lengths of time.

Unless the patient improves under these measures it would be advisable to empty the uterus, because this would hasten the cure and would give her a better chance to enter later pregnancies with undamaged kidneys.

If the pyelitis is bilateral, the emptying of the uterus is more strongly indicated.

## POISONING FROM CREOSOTE

*To the Editor:*—A man, aged 60, has adjoining his home on the south an unwalled lot on which is stored a carload or so of creosote lumber, which is all the way from 10 to 60 feet from his home. Last summer the man complained of loss of appetite, a nauseated feeling, vertigo, and increasing deafness, especially in one ear. Examination was entirely negative except for a scarred tympanic membrane. The symptoms were not appreciably altered by thorough elimination. The summer was long, dry and hot, with an almost constant wind blowing directly from the creosote timbers into the man's home. His business, a small repair shop, is located at his residence, so that he was subjected to these fumes almost all the time. What are the signs and symptoms of creosote poisoning? Do you think it possible that any or all of these symptoms could be due to the symptoms described? Please omit name. M.D., Oklahoma.

Answer.—Distinction must be drawn between real creosote poisoning and the condition described in this query. The creosote used for this purpose may be water gas tar or a complex mixture of various high boiling coal tar distillation products. Tarry acids are present, including various substances akin to cresols and phenols. The commonest disorder is a dermatitis, ordinarily produced only by direct contact but occasionally from vapors existing near treated woods. Commonly this ceosote material is regarded as not evaporating. This is relatively true on comparison with the evaporation of water or naphtha. However, some drying out does take place, particularly in hot weather, with the result that persons near extensive drying out surfaces may become involved. Track walkers walking on hot days along railroads having cross ties recently treated with creosote occasionally suffer from a dermatitis, nausea, and distaste for food. In the case cited in this query it is unlikely that any association should be made between the creosote and the scarred tympanic membrane, increasing deafness and possibly the vertigo. On the other hand, in the absence of any other plausible explanation, the feeling of nausea and the loss of appetite may well be linked with creosote emanations under the circumstances of close proximity of the lumber pile and hot weather. Probably this action is not specific but might arise from almost any other disagreeable odor. A mental element undoubtedly contributes, for almost any one would be disturbed and irritated by the prolonged presence of offensive vapors of any character. Although odors are usually held blameless as the direct source of any disease state, it must be recognized that odors directly or indirectly bring about shallowness in breathing with some subsequent deprivation of the body of adequate oxygen, nausea, gastric discomfort, occasionally vomiting, and distaste for food. Creosote vapors are capable of bringing about this type of minor dysfunction and have been known so to do.

## TREATMENT OF WARTS

*To the Editor:*—I read with interest the report by Dr. Sophie A. Lurie in The Journal (Nov. 3, 1934, p. 1399) on the treatment of warts with bismuth salicylate. Could you please send me detailed information such as interval of injections, amount injected, and so on, and also whether it has been tried in the removal of moles; also further references on the subject. Aaron Barcham, M.D., New York.

Answer.—A preparation of bismuth commonly used for intramuscular injection is the subsalicylate in a 10 per cent suspension of a vegetable oil. Of this, 1 or 2 cc. (from 0.1 to 0.2 Gm. of the salt) is given once a week to adults.

The report of Dr. Lurie in Queries and Minor Notes in The Journal suggests that bismuth given in this way cures warts in just about 100 per cent of cases. A previous article by Dr. Lurie (Verrucae Vulgaris, Palmar and Plantar, Treatment by Intramuscular Injections of Bismuth Salicylate, *Arch. Dermat. & Syph.* **28**:95 [July] 1932) reports the cure of thirty-four patients in a series of forty-nine treated. The result in the other fifteen could not be ascertained. At least one of the thirty-four cured could not be seen. The cure was reported by a nurse.

Two possibilities must be considered in attempting to explain this brilliant result: 1. That it was a coincidence that the warts cleared up soon after the treatment was begun. Goodman and Greenwood (Verrucae, *Arch. Dermat. & Syph.* **30**:659 [Nov.] 1934) criticize the reports on the cure of warts because they almost never include a control series, cases that were not treated, to compare the cases of spontaneous recessions with the percentage of cures after treatment. Dr. Lurie's successes were so many, however, and most of them occurred so promptly after the onset of treatment, that coincidence can hardly be held responsible. 2. That the drug is an active curative agent. This does not fit with the experience of many other dermatologists, who have given full doses of bismuth compound intramuscularly for many weeks without result. It can be said, however, that some patients are more susceptible to the action of the drug

than are others. 3. That the warts were cured by suggestion. Dr. Lurie makes no statement that she attempted to rule out this possibility as others have done (Cormia, F. E.: Autolysate Treatment for Verrucae Vulgaris, *Arch. Dermat. & Syph.* **30**:44 [July] 1934) by discouraging the patient, mentioning that warts are very hard to cure, and so on. Cormia's results were poor, favoring the theory of suggestion rather than the curative effect of the Biberstein autolysate, which he was testing.

If a bismuth compound is used, the urine should be examined before treatment is begun, and frequently during treatment, and on the appearance of albumin or casts the treatment should be suspended. A careful watch should be maintained for itching skin eruptions and the drug stopped until they can be cleared. A blue line on the gums next the teeth indicates saturation with the drug, with impending stomatitis, and treatment should be discontinued if it appears. Usually a series of eight weekly injections is considered a full course.

Warts are thought to be due to infection with a filtrable virus. Treatment with bismuth compounds is rational for such a disease. Moles are new growths in the skin, probably benign epitheliomas, and there is no reason to expect bismuth compounds to have any effect on them.

## CANCER OF CERVIX AFTER CHILDBIRTH

*To the Editor:*—Can you quote or refer me to statistics concerning the relative frequency of the occurrence of cancer of the cervix in women who, after childbirth, have had a trachelorrhaphy (or cauterization), as compared to those who, after childbirth, have not had done either of these procedures? I should like also to know the statistics on the occurrence of cancer of the cervix in all women as compared to those who have had done repairs or cauterizations of the cervix. Please omit name and town.

M.D., North Carolina.

ANSWER.—Lynch, writing for Davis's Gynecology and Obstetrics, says: "Carcinoma is the most frequent malignant tumor of the uterus. Usually it is primary and very rarely is it secondary from cancer in adjacent organs. Orth states that it forms 30 per cent of all carcinomas in women. It is responsible for at least 4 per cent of all gynecologic pathology. It kills more than 13,000 women annually in the United States (65,603 deaths from cancer of the uterus in the United States registration area 1925-1929 inclusive); 12.61 per cent of all cancer deaths are from cancer of the uterus; these form 87 per cent of all deaths from cancer of the female genital organs (Hoffman)."

Lynch finds that the view that nulliparity or even virginity protects women from the chance of cervical cancer can be disproved from properly prepared reports, which show the relative proportion of cancer in nulliparous and multiparous women of the cancer age in the entire population.

It would seem that it is the long continued chronic irritation of the cervix which is important, and all writers appear to agree that early cervical cancer is rarely found in women who have healed scars of cervical tears. Reference is commonly made to the report of Graves, who made a follow-up study of 6,000 women who had cervical repairs (not to remove the lacerations but to remove the infected areas contained therein) and found that only two women thus treated had developed cancer of the cervix at the time the study was made. Furthermore, the history of women who have cancer of the cervix shows that relatively few have had either regular pelvic examinations or treatment of chronic irritations of the cervix. Thus far most of the statistical studies must be considered inadequate and the conclusions suggestive rather than absolute, but gynecologists are generally of the opinion that the treatment of cervical irritations and lacerations definitely lessens the risk of cervical cancer.

## MYOSARCOMA OF BREAST

*To the Editor:*—I am interested in available literature on myosarcoma of the breast.

J. L. FORD, M.C., Lancaster, Pa.

ANSWER.—Reports on myosarcoma of the breast are difficult to locate because of the confused terminology used in reporting mammary sarcoma. The literature on sarcoma of the breast has been brought down to the present in articles published in the *Annals of Surgery* from 1915 to 1934.

S. L. Fox in his recent paper (Sarcoma of the Breast, *Ann. Surg.* **100**:401 [Sept.] 1934) reviews the reports of S. H. Gesit and A. O. Wilensky (Sarcoma of the Breast, *Ann. Surg.* **62**:11, 1915). Rigney D'Aunoy and R. W. Wright (Sarcoma of the Breast, *Ann. Surg.* **92**:1059 [Dec.] 1930) collected sixty-eight additional cases, including seven of their own, and in 1932 B. F. Schreiner and A. A. Thibeaudeau (Sarcoma of the Breast, *Ann. Surg.* **96**:453 [March] 1932) added seven more.

Some of these cases were probably myosarcomas that were not distinguished by the authors and were loosely grouped under mixed tumors or fibrosarcoma. Figures 9, 10 and 11, page 408, in Fox's article is a probable myosarcoma, although at the time of publication he regarded the tumor as possibly of neurogenic origin. The sections have been restudied. The sixth case of Schreiner and Thibeaudeau is a probable myosarcoma, although described as composed of spindle, round and giant cells.

Gaudier, Grandclaude and Lambret (Tumeur maligne du sein à type myoépithélial, *Ann. d'anat. path.* **8**:68 [Jan.] 1931) report a mild epithelial tumor of the breast, which they thought was malignant.

Leroux and Chaton (Dysembryome complexe de la glande mammaire, *Bull. Assn. franç. pour l'étude du cancer* **22**:80 [Jan.] 1933) have reported a fibrorhabdomyosarcoma of the mammary gland, and (Voluminoso sarcoma ad elementi polimorfi e giganti della mammella, *Cancro* **3**:226, 1932) gives illustrations of a possible sarcoma of this type under the heading of "Large Polymorphous and Giant Cell Sarcoma of the Breast." Both of these last two articles are abstracted in the *American Journal of Cancer* **20**:906 (April) 1934.

## BURSITIS

*To the Editor:*—About two months ago, while I was removing a prepatellar bursa under local anesthesia, the sac was ruptured, making it a little uncertain as to whether it was removed in its entirety. The patient was permitted to be up and about forty-eight hours after the operation. At this time serum continues to discharge, several drachms daily, and if the skin incision should be permitted to close the condition would apparently recreate itself. What is the best procedure to follow in this case? Please omit name.

M.D., California.

ANSWER.—As long as any secreting cells remain, drainage will continue. In this case it is also necessary to determine roentgenographically whether there is now any osteomyelitis of the patella or a connection with the knee joint cavity. The latter may be demonstrated by means of injection of iodized poppyseed oil. If these complications do not exist, the drainage tract should be curetted and then cauterized with surgical diathermy, phenol or Zenker's fluid. A compression bandage must be applied to prevent reaccumulation of the fluid. If no healing occurs subsequent to this treatment, or if the foregoing complications exist, reoperation will be necessary. At this time, all secreting tissue should be removed if possible and those portions which cannot be excised should be curetted and cauterized.

## POSSIBLE SENSITIVITY TO LIVER EXTRACT

*To the Editor:*—I have been treating a patient who has pernicious anemia with intramuscular injections of a concentrated liquid liver extract, prepared by one of the leading pharmaceutical chemists. I have administered this preparation in the dosage recommended by the manufacturers, and the results obtained have been excellent so far as improvement in the blood picture and the general nutrition and health of the patient are concerned. However, about sixty days after the mentioned treatment the patient developed a severe and extremely obstinate case of urticaria. Nothing gives her relief, except epinephrine, and this for only a short time. Is it possible that the liver extract is responsible for the urticaria? Please advise me as to the toxic manifestations that might result from this treatment, and if you can suggest anything to relieve this urticaria I will greatly appreciate it. I have eliminated all articles of diet that might have been causative factors. A change in residence has been of no avail. A complete physical examination, including gastro-intestinal roentgenograms, reveals nothing of a pathologic nature. Please omit name.

M.D., North Carolina.

ANSWER.—In spite of its fairly wide use, reactions following liver treatment are rare. In one large clinic devoted to blood diseases, reactions have occurred only twice in a large series of cases: 1. A man had asthma in addition to his anemia, and the first intravenous dose of liver extract was followed immediately by an attack of asthma; before the second dose, however, epinephrine was given and no reaction occurred. 2. In the second case, cyanosis and collapse occurred immediately after injection. Urticaria, however, did not occur in either of these cases.

In a case reported by Held and Goldbloom (THE JOURNAL, April 25, 1934, p. 1361) generalized itching and redness with deep wheals like erythema nodosum followed the beginning of a series of intramuscular doses of liver extract. The skin lesions disappeared when the extract was withdrawn and reappeared when treatment was resumed. The same patient, however, was able to take cooked liver by mouth without difficulty. This is the only available published report. The condition is obviously rare.

In the case under discussion, urticaria developed sixty days after the beginning of liver treatment. The time interval is

pretty long, although the relief from epinephrine favors the theory of allergy as a cause of the trouble. The possibility is definite.

The treatment should be (1) to experiment with different brands of liver extract or (2) to substitute oral administration for intravenous or intramuscular administration, as in the reported case. If, later, the urticaria persists, the steps will be (1) to search and remove all foci of infection and (2) to consider the importance of dusts in the environment, making intradermal tests with extracts of such substances as silk floss, kapok, cottonseed, orris powder, animal danders, and pollens, since it is now recognized that urticaria and eczema result from exposure to foreign substances which may enter the system by way of the respiratory tract.

## ICHTHYOSIS

*To the Editor:*—While I was treating the son of a patient today, she brought in an orphan she has been keeping for six years, who has had a diagnosis of fish scale (or skin) dermatitis. He is now 9 years of age and every fall and winter when it is necessary to clothe him more fully he develops this condition, which itches and changes the color of his skin to a grayish, almost silver, appearance. The fish scale diagnosis was made probably from the way in which the skin (which is dry, flaky and rough) assumes a cracked appearance, resembling scales. This condition extends over the entire body except the face and hands, which are, of course, exposed. The scales and itching also infest the hair. He has been under treatment with light, probably ultraviolet, and baths, averaging sixteen a week (washing with soap and water and then applying some oil, thought to be fish oil). Under this treatment the skin responds fairly well to assuming its normal appearance. He has been made much worse with cod liver oil, as his adopted mother states. During the summer months he is entirely free from any itching or scales and wears but little clothing, which has been the rule for the last six years. Now as to what I have observed of this young chap from first acquaintance: He is very attentive and is doing well in school; he seems to be quick tempered but not nervous; he sleeps well at night; his appetite is good; he had his tonsils out six years ago; his teeth are very good; he weighs 60 pounds (27 Kg.) and is 59½ inches (152 cm.) tall (normal for a boy his age). His mother and father cannot be traced, but from the history the mother was 14 years old and the father 15 when he was born. Would this cause any maldevelopment of the integument, giving these symptoms and appearance? Would thyroid extract benefit this boy? Have you an idea as to the cause and how to treat the condition to eradicate it? Kindly omit name. M.D., Ohio.

ANSWER.—This is a case of ichthyosis of moderate severity. The disease is often familial, but the youth of the parents had nothing to do with it as far as is known. The disease cannot be cured but may be mitigated greatly by proper bathing and inunction, as is already being done. These cases are always worse in winter when the skin is dry. Borax or sodium carbonate may be added to the bath water. Immediately after the bath, while the skin is still moist, it must be anointed with oil of theobroma, petrolatum, or a mixture of olive oil 3 parts, glycerin 1 part and emulsion of hydrous wool fat 10 per cent in lime water, or any of many other kinds of fat. Salicylic acid from 2 to 5 per cent may be added if it is thought necessary. On the face and hands, glycerin and sodium biborate may be used or the familiar glycerin 10 per cent in rose water.

Desiccated thyroid has been of benefit in ichthyosis. In the case under discussion it would seem unnecessary and had better be avoided, unless the basal metabolism is low.

Residence in a warmer climate would mitigate the severity of the disease.

## PIGMENTATION OF SKIN BY MERCURY CREAMS

*To the Editor:*—In THE JOURNAL, Nov. 3, 1934, in the answer to a query with reference to the effects of mercury impregnation on the hair, it is stated that treatment for the removal of the mercury is very unsatisfactory. I have a patient who used a mercurial cream on her face, neck and arms for a number of years. She came to me about nine months ago with definite symptoms of advanced chronic mercurial poisoning. On examining the urine I found mercury present. After the patient discontinued the use of the cream and with the institution of eliminative treatment, the metallic taste, foul breath and spongy gums cleared up and her health in general is improved, but the slate color of the skin, which appears only where the cream was used, does not improve. I have prescribed sweat baths, potassium iodide and tonics, and in addition she has tried blistering the skin and massage, but the discoloration of the skin remains unimproved. What would you suggest and what is the prognosis? Kindly omit name. M.D., Pennsylvania.

ANSWER.—The production of lasting staining of the skin by cosmetics containing mercury was reported by W. H. Goeckerman (A Peculiar Discoloration of the Skin, THE JOURNAL, Aug. 19, 1922, p. 605). The pigment affected chiefly the eyelids, the nasolabial folds, the chin and the folds of the neck and looked as if the skin was dirty. On close inspection it was seen to be in black points in the follicular openings. Scrapings from this skin gave no information. Biopsy was not permitted. Treatment was but slowly helpful. Two per cent acetic acid solution in water and from 0.5 to 1 per cent potassium cyanide in water were said by the patient to give definite improvement, showing how little credence can be given such reports, for, as was demonstrated later, the pigment was within the skin.

In a second report under the same heading (THE JOURNAL, Feb. 14, 1925, p. 506) Goeckerman reported thirteen more cases, from one of which he obtained a biopsy. The pigment was seen in the microscopic section scattered through all the layers of the skin, including the epidermis. Treating such a section with an iodine solution removed this pigment. Goeckerman recommends iodides internally or sodium thiosulphate.

J. B. Blashill (Pigmentation of the Face and Neck Due to Freckle Cream, THE JOURNAL, June 18, 1932, p. 2200) reported another of these cases, tried several forms of treatment, and concluded that time was the chief hope for these sufferers.

External application can be of no avail. Iodine or sodium thiosulphate internally seems the only rational method of attack.

There are, of course, other possibilities. The pigment may be ordinary skin pigment increased by local irritation or chloasma secondary to the general poisoning with mercury, possibly due to liver damage. In this case, some improvement may be obtained by the persistent use of 30 per cent hydrogen dioxide, 1 cc., and wool fat, 6 Gm., in sufficient petrolatum to make 10 Gm. This is to be applied to a small area once daily. If irritation results, one should stop and wait for it to subside. The danger of increasing pigmentation by any irritating application must always be kept in mind. This treatment, of course, will not affect the mercury stain.

## CHRONIC SINUS INFECTION

*To the Editor:*—What is the accepted treatment of a chronic nasal and nasopharyngeal catarrh, which condition is accompanied by an odor approaching that found in ozena? What is the status of nasal and nasopharyngeal irrigations in treatment of chronic infection of the paranasal sinuses? Please omit name. M.D., Iowa.

ANSWER.—If the so-called catarrah is due to a chronic nasal sinus infection, the latter must be treated as such. In other words, if there is obstruction to proper drainage, or if polypi are present, some type of operation on the sinuses will be necessary. If, on the other hand, there is an atrophic rhinitis or atrophic pharyngitis present, this must be treated in order to prevent the formation of abnormal secretion and its adherence to mucous membrane and then decomposition, the latter often giving rise to the foul odor of ozena. If the atrophic rhinitis or pharyngitis is present, a mild alkaline cleaning solution may be used. However, not only in this condition but in chronic infection of the nasal sinuses as well, douching is fraught with considerable danger to the ears unless certain precautions are observed, such as having an isotonic solution of a mild alkaline character, with the temperature of the fluid at slightly above body temperature, using but little pressure and having the mouth opened wide while the fluid is entering and leaving the nose. Douching, of course, is no cure but helps by removing secretions and, when ozena is present, often lessens the odor.

## CONDYLOMA ACUMINATA

*To the Editor:*—A primipara, aged 20, was delivered by high forceps, and a mild puerperal sepsis developed. Her temperature became normal but there is hypersensitiveness of the introitus and the vagina. There is a persistent leukorrhea from endocervicitis. The left Bartholin's gland gives a slight suggestion of chronic inflammation. Two growths developed, one on each lateral wall of the vagina, which look similar to hymenal tags, except that they are red, bleed easily, and are situated about 2 cm. proximal to the introitus; but they do not seem to be hypersensitive. I have used 10 per cent silver nitrate to the cervix, sulphonated bitumen-glycerin tampons, gentian violet tampons, and bismuth subnitrate tampons, without results. The organism present on smears is an encapsulated diplobacillus, similar in size and shape to the pneumococcus. Hot douches have not relieved the hyperesthesia to any marked extent. The uterus is in second degree retroversion and is difficult to palpate or manipulate on account of pain. Would coagulation of the cervix and replacement of the uterus relieve the hyperesthesia? How best could the latter be done, considering the pain? I would appreciate any suggestions in management of this case. Kindly omit name. M.D., Minnesota.

ANSWER.—Naturally it is impossible to make a diagnosis from the description that has been sent of these lesions. There are several conditions that might cause the signs and symptoms. Condyloma acuminata and granulomas (excessive granulation) might be suggested. These granulomas should be removed by scraping, and the bases should be cauterized. This usually cures the discharge, and the tenderness disappears in a short time. One should be conservative with electrical coagulation of the cervix, as it is easily overdone. The treatment of condyloma acuminata was described in THE JOURNAL, January 12, page 137.

### LIVER EXTRACT INTRAMUSCULARLY

*To the Editor:*—In using liver extracts intramuscularly, I have heard that reactions "are rare, but they do occur," implying general reactions, I presume. But is there such a phenomenon as local tissue reaction? I have given these intramuscular injections in a considerable number of cases without any apparent disturbance except slight irritation on injection; however, the present patient, a rather stout person with very pronounced anemia, took the first seven doses without complaint except that a palpable lump seemed to remain. After the eighth dose a hardened area the size of a hen's egg, and a reddened area the size of the palm of the hand, developed. The ninth dose produced an even greater area of reaction, when this form of treatment had to be abandoned. Do you suppose that a change of the brand of material would be sufficient or would you place the patient on oral liver therapy? Please omit name.

M.D., New York.

ANSWER.—It would be wise to switch to another brand of potent liver extract, and it is important not to reinject in the same area too frequently. Different areas of the body should be chosen, so that no one area will be used more frequently than every third or fourth week. If the lump persists, a change to oral liver or desiccated hog stomach therapy is advisable.

### TRAVELING DURING PREGNANCY

*To the Editor:*—A primipara, four months pregnant, is planning a three weeks vacation trip (her husband to do the driving) to Florida from Boston and back. Do you think it advisable and safe? Please omit name and town.

M.D., Massachusetts.

ANSWER.—Almost universally, pregnant women are cautioned against taking long automobile, train or boat trips. However, with few exceptions there is in reality but little risk involved in traveling. Nevertheless, if a patient has bled one or more times during her present pregnancy it is best for her not to go far away from home. Likewise, if a woman has had one or more spontaneous miscarriages it is best for her to avoid long trips unless they are absolutely necessary. When a trip is planned, it is advisable to avoid traveling during the few days when the menstrual period would have occurred were the patient not pregnant. Nowadays with the remarkably smooth roads in most parts of the country and with the riding comfort of the modern automobile, most pregnant women may safely take long trips. It is much safer to tour after the fourth month than before that period.

### TORSION OF SPERMATIC CORD

*To the Editor:*—Can you give me any information on the following case? A Negro, about 18 years old, with fully developed external genital organs, has had his testicles retracted until the left one has returned into the abdomen, and the right one has caught at the external abdominal ring. There has been no pain except for a short time in the right testicle due to pressure. The scrotum has entirely disappeared. From the time he first noticed any change, only about one week elapsed until the present condition was reached.

D. F. STOUGH, M.D., Geary, Okla.

ANSWER.—Sudden changes in the external genitalia, such as mentioned in this query, can in all probability be best explained on the basis of torsion of the spermatic cord. This condition is acute in its onset and often is not recognized, so that the torsion is not released and atrophy of the testicle results, with or without retraction. However, attention may be called to the fact that torsion of the cord with atrophy of the testicle does not, as a rule, produce entire disappearance of the scrotum, as stated here.

### SODIUM BICARBONATE NOT A CATHARTIC

*To the Editor:*—Please comment on the use of sodium bicarbonate as a cathartic given in such dose as a "heaping teaspoonful" in a glass of hot water half an hour before meals. Is this an old remedy? Is there any harm in its continued use? Please suggest a few substitutes that may act similarly and as favorably.

M.D., Ind.

ANSWER.—Sodium bicarbonate in a glassful of water is not a cathartic in the usual interpretation of the term, any more than a glass of water is. Nevertheless, cathartic action may be secured from either of these and, no doubt, more certainly from the combination of the two. The latter should not be resorted to if the ingestion of a tumblerful of cold water suffices. If it does not, it would be preferable to employ a teaspoonful of sodium chloride in a glassful of hot water rather than the bicarbonate, as the latter may have a tendency to disturb the acid-base equilibrium of the gastro-intestinal tract and even of the system. Indeed, it may act as a cathartic by disturbing normal digestive function.

## *Medical Examinations and Licensure*

### COMING EXAMINATIONS

ALABAMA: Montgomery, June 24-26. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral (Group A and Group B candidates).* New York, June 10. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Final oral and clinical examination (Group A and Group B candidates).* Atlantic City, N. J., June 10-11. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 8, and New York, June 10. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 10, and St. Louis, Nov. 19. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 7-8. Sec., Dr. Walter Freeman, 1726 Eye St. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 8-10. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

ARIZONA: *Basic Science.* Tucson, June 18. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical.* Phoenix, July 2. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: San Francisco, July 8-11 and Los Angeles, July 22-25. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 2. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Sciences.* New Haven, June 8. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical.* Hartford, July 9-10. *Endorsement.* Hartford, July 23. Sec., Medical Examining Board, Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: June 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: Washington, July 8-9. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 17-18. Sec., Dr. William M. Rowlett, P. O. Box 786, Tampa.

GEORGIA: Atlanta and Augusta, June 11-12. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, July 8-11. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

ILLINOIS: Chicago, June 25-28. Address, Department of Registration and Education, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, Room 5 State House Annex, Indianapolis.

IOWA: Iowa City, June 4-6. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 18-19. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 5-7. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, June 6-8. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bldg., New Orleans.

MAINE: Augusta, July 2-3. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MARYLAND: *Regular.* Baltimore, June 18-21. Sec., Dr. John T. O'Mara, 1211 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 11-12. Sec., John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 9-11. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413 State House, Boston.

MICHIGAN: Detroit, June 5-7, and Ann Arbor, June 11-13. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Sciences.* Minneapolis, June 4-5. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, June 18-20. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June 25-26. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 12-14. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination, June 24-26 and Sept. 16-18. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: Omaha, June 11-12. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 24-27. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 10-14. Sec., Dr. Benj. J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 2-5. Sec., Dr. G. M. Williamson, 4½ S. 3d St., Grand Forks.

OHIO: Columbus, June 4-7. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 5-6. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PENNSYLVANIA: *Written.* Philadelphia and Pittsburgh, July 9-11. *Bedside.* Philadelphia, July 12-13. Dir., Bureau of Professional Licensing, Mr. W. M. Denison, 400 Education Bldg., Harrisburg.

RHODE ISLAND: Providence, July 2-3. Dir., Department of Public Health, Dr. E. A. McLaughlin, 319 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 16-17. Dir., Division of Medical Licensure, Dr. Park B. Jenkins, Pierre.

TENNESSEE: Knoxville, Memphis and Nashville, June 13-14. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, June 18-20. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

UTAH: Salt Lake City, July 8-10. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 26-28. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 19-21. Sec., Dr. J. W. Preston, 2815 Franklin Road, Roanoke.

WASHINGTON: *Basic Science*, Seattle, July 11-12. *Medical*, July 15-17. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

WEST VIRGINIA: Clarksburg, July 8. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science*, Milwaukee, June 1. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical*, Milwaukee, June 25-28. Sec., Dr. Robert E. Flynn, 401 Main St., LaCrosse.

## Colorado January Report

Dr. William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, Jan. 2, 1935. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. Ten physicians were licensed by endorsement. The following schools were represented:

| School | PASSED | Year Grad. | Per Cent |
|---|---|---|---|
| University of Colorado School of Medicine | | (1933) | 83 |
| Jefferson Medical College of Philadelphia | | (1925) | 83 |
| Osteopaths* | | | 77, 87.6 |

| School | LICENSED BY ENDORSEMENT | Year Grad. | Endorsement of |
|---|---|---|---|
| University of Arkansas School of Medicine | | (1931) | Arkansas |
| College of Medical Evangelists | | (1934) | California |
| School of Medicine of the Division of the Biological Sciences | | (1932) | Illinois |
| University of Illinois College of Medicine | | (1928) | U. S. Navy |
| Indiana University School of Medicine | | (1928) | Indiana |
| Baltimore Medical College | | (1901) | W. Virginia |
| St. Louis University School of Medicine | | (1927) | Texas |
| Cornell University Medical College | | (1921) | New York |
| University of Pittsburgh School of Medicine | | (1925) | Penna. |
| McGill University Faculty of Medicine | | (1933) | N. B. M. Ex. |

* Licensed to practice medicine and surgery.

## District of Columbia January Examination

Dr. George C. Ruhland, secretary, Commission on Licensure, reports the written examination held in Washington, Jan. 14-15, 1935. The examination included 58 questions. An average of 75 per cent was required to pass. Fifteen candidates were examined, 14 of whom passed and one failed. The following schools were represented:

| School | PASSED | Year Grad. | Per Cent |
|---|---|---|---|
| George Washington University School of Medicine | | (1932) | 85.3, 90.1, (1933) 88.2, 89.1 |
| Georgetown University School of Medicine | | (1932) | 82.3, (1933) 84, 89 |
| Howard University College of Medicine | | (1933) | 88.7 |
| Johns Hopkins University School of Medicine | | (1929) | 89.6 |
| University of Maryland School of Medicine and College of Physicians and Surgeons | | (1933) | 84.5 |
| Long Island College of Medicine | | (1934) | 86.2* |
| University of Oregon Medical School | | (1930) | 81.7 |
| Medical College of Virginia | | (1929) | 88.3 |

| School | FAILED | Year Grad. | Per Cent |
|---|---|---|---|
| Georgetown University School of Medicine | | (1932) | 72.3 |

* License withheld pending completion of internship.

## Iowa January Examination

Mr. H. W. Grefe, director, Division of Licensure and Registration, reports the written examination held by the Iowa State Board of Medical Examiners at Des Moines, Jan. 3-5, 1935. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. The following schools were represented:

| School | PASSED | Year Grad. | Per Cent |
|---|---|---|---|
| Loyola University School of Medicine | | (1933) | 85.3 |
| University of Minnesota Medical School | | (1928) | 86.3 |
| Creighton University School of Medicine | | (1934) | 84.5* |
| Friedrich-Wilhelms-Universitat Medizinische Fakultat, Berlin | | (1933) | 82.9† |

* License withheld pending completion of internship.
† Verification of graduation in process.

# Book Notices

**X-Ray Interpretation. By H. Cecil H. Bull, M.A., M.B., M.R.C.P., Physician and Hon. Radiologist, Royal Waterloo Hospital, London. Cloth. Price, $7. Pp. 382, with 280 illustrations. New York & London: Oxford University Press, 1935.**

This has been written as an aid to clinical diagnosis; hence it devotes more space to common pathologic conditions than to the rare ones. Simple drawings and silhouettes were chosen to illustrate the text in the just belief that a sketch comes through with greater clearness and brings the writer in closer touch with the reader than any reproduction can do. The text is divided into chapters on the osseous system, brain, alimentary tract, cholecystography, chest, genito-urinary system, soft tissues, teeth and pregnancy. In each chapter a description of the normal appearance of the organ discussed is followed by a presentation of the most frequent pathologic conditions, including traumas. Valuable additions to the chapters on bones and articulations deal with ossification centers and their order of appearance. The orthodiagrammatic method of estimation of the size of the heart has not been described; sodium iodide is the only drug recommended for ascending pyelography; the use of thorium dioxide for visualization of the spleen should be discussed, although it frequently meets adverse criticism; Caldwell's, Granger's and Waters-Waldron's positions for roentgenography of the sinuses deserve description; the use of occlusal films for recording the relationship of the teeth in the horizontal plane should be mentioned. These are minor omissions. The work is remarkably practical and comprehensive, despite its conciseness. The author deserves credit for a simple, attractive presentation of his subject. The book should be enthusiastically received by the practitioner wishing to acquire an elementary knowledge of roentgen interpretation.

**Praktische Diätteil mit über 500 Kostvorschriften für diätetische Behandlung für Ärzte und Patienten. Von Geh. Hofrat Dr. L. Rosenheld, Sanatorium Schloss Hornegg (Württg.). Fourth edition of "Praktischen diätetischen Kochbuchs" von Dr. Curt Parlaer. Cloth. Price, 6.20 marks. Pp. 286. Leipzig: Fischers medizinische Buchhandlung, 1935.**

The author of this small book, the medical chief of a German sanatorium, urges physicians to use it in the daily adjustments of the feeding of their patients. The first part is devoted to a brief general discussion of diets for various ailments. The second part consists of recipes for a multitude of dishes. Theoretical considerations seem to be purposely avoided. Quantitative values are given practically only in connection with recipes. Caloric values, dextrose, fat and protein contents, mineral, vitamin and fiber constituents are almost completely ignored. General discussion is mostly vague; many recommendations are antiquated and some contrary to present-day knowledge in nutrition. For example, various vegetable days, fruit days, milk days, oat days and rice days are still recommended in the diabetic regimen. All meats, vegetables and eggs, among other things, are completely unrestricted in the diabetic diets. As far as the recipes are concerned, it is difficult to imagine where their usefulness might lie. They seem unsuitable for either physician or chef. On the whole, this book seems to serve only the purpose of demonstrating the poor development of German dietetics.

**The Nutritional Origin of Cancer. By Edwin E. Ziegler, M.D. Paper. Price, $2.50. Pp. 91. Boise, Idaho: The Author, 1934.**

The author has compiled a mass of statistical data designed to prove his thesis that the changing diet of man from an acid-forming diet to a base-forming diet explains the geographic incidence of cancer as well as the increase in the incidence of cancer. It is claimed that the effect of a prolonged base-forming diet is nutritional alkaloses with important adverse effects in the body. The author believes that certain European countries have a higher cancer death rate because they consume large quantities of alkaline foods, such as potatoes, whereas those countries which derive their calories chiefly from grain have the lower cancer death rates. For prophylaxis and treatment, the author suggests the use of an acid-ash diet, hydrochloric acid and pepsin, the administration of predigested proteins, the administration of acid salts, and the parenteral injection of amino acids. It is obvious that the author accepts

unequivocally many statements in the literature that are open to challenge. For example, it is well known that the claimed difference in the incidence of cancer in noncivilized and in civilized communities has been demonstrated to be due to the fact that necropsy control and accurate records are naturally inferior in the less civilized countries.

The author does not present a true and clear concept of the normal acid-base balance of the blood and of the complicated regulative mechanism that keeps it within physiologic limits. As a matter of fact, the acid-base balance is only slightly disturbed even in severe diseases and almost not at all in the usual dietary differences of individuals during health. Thus Peters and Van Slyke state: "Hasselbalch demonstrated that changing from a high carbohydrate to a high protein diet caused the $CO_2$ capacity of the blood to fall about 3 volumes per cent. Blatherwick has analyzed the acid and base content of the ash of many foodstuffs and has classified them according to their acidifying or alkalinizing powers. He has also demonstrated that by selecting diets from foods belonging to one or other group the reaction of the urine may be altered in the desired direction. The adjusting ability of the kidneys, however, is so great that the products of normal metabolism cause hardly appreciable effects on the internal acid-base balance, as indicated by the plasma bicarbonate content and $p_H$."

The author's assumption that a heavy protein diet is more acid forming is contradicted by Peters and Van Slyke (Quantitative Clinical Chemistry, p. 966), who state that the alkaline tide is most evident after a heavy protein meal and may fail to appear after one consisting predominantly of fat and carbohydrate.

On page 84 the author says: "Fever, starvation, incomplete surgical operation and other factors have been observed to cause regression of the cancer. The effect of these various agents is the production of a relative acidosis in the body." The regression of cancer under these circumstances is most questionable and, if it ever occurs, it is with extreme rarity. How an incomplete surgical operation can cause cancer regression and produce a relative acidosis is not clear. However, the curious circumstance is that the author points to the acidosis of fever, starvation and incomplete surgical operation as a causative factor in tumor regression in the face of the thousands of patients who die of cancer in the presence of fever, starvation and because of incomplete surgical operation.

On page 85 the author makes the statement: "That the acidosis treatment is so spectacular emphasizes the fact that cancer is a deficiency disease." What evidence is there to support the spectacular nature of the acidosis treatment of cancer? A single isolated and highly questionable observation.

The excellent motives and high purpose of the author are beyond question, and on his interest and industry in collecting a vast array of data he is to be commended. The fundamental fallacy is obvious. In his eagerness and enthusiasm to prove his thesis he has selected the data that support his theory and omitted all evidence to the contrary. The work is uncritical and the conclusions therefore are unsound. It would be an accident indeed if a great truth should be discovered by considering only such data as seemed to support a theory without considering all phases of the question. The alkalosis theory of cancer causation and the acidosis treatment of cancer remain unproved theories.

**Diättherapie der Lungentuberkulose. Von Dr. Max Gerson. Mit Röntgenbefunden und einem Röntgenkapitel von Dozent Dr. Felix Fleischner. Paper. Price, 38 marks. Pp. 619, with 154 illustrations. Leipzig & Vienna: Franz Deutlcke, 1934.**

This book, with a foreword by Felix Fleischner, contains an elaborate discussion of diet in the treatment of tuberculosis. Many pages are devoted to a theoretical discussion of acute and chronic infection, anaphylaxis, allergy, vitamins and minerals in the diet. Considerable attention is given to the importance of recognizing allergic conditions, which may result in migraine, asthma and gastro-intestinal disturbance, with the thought of discovering the exciting cause and removing it when the diet is responsible. Gerson's diet in the treatment of pulmonary tuberculosis, which has become well known in various parts of the world, is outlined and discussed in considerable detail. Cases are reported representing various forms of tuberculosis that have been treated by the Gerson diet. This section of the book contains a large number of illustrations made from x-ray films of the chests of patients who have been treated by the dietetic method. It is interesting to note that diet has played an important part in the treatment of tuberculosis since the time of Hippocrates and that from time to time special diets have been advocated, not one of which has proved a panacea for the treatment of tuberculosis. It seems highly improbable that diet alone will ever suffice in the treatment of this disease. However, food is important in the treatment of any chronic disease but patients must be treated individually, since what may be definitely beneficial in one case may be harmful in another. Any physician treating tuberculosis will be helped by the information obtained from Gerson's book, provided he gives diet its proper evaluation and does not neglect other standard forms of treatment.

**A Textbook of Nursing Technique: A Manual Used in the Associated Hospitals in the University of Minnesota School of Nursing. By Marion L. Vannier, R.N., and Barbara A. Thompson, R.N., B.S., Director of the Wisconsin Bureau of Nursing Education. Second edition. Cloth. Price, $2.50. Pp. 285, with illustrations. Minneapolis: University of Minnesota Press, 1935.**

In the preface of the first edition the authors stated that "the purpose of the manual is to assure accuracy in detail and to obviate the necessity of note-taking by the students during the presentation of the demonstrations by the instructor." Now, after four years of use, a revision has been made in an effort to clarify the steps in the procedures, to alter technics as indicated in the light of new scientific knowledge, and to eliminate those procedures which do not easily fit into the schemes of different hospitals. The first half of the book is given over to a discussion of the elementary procedures, and the second half to advanced procedures. The latter includes an excellent chapter on problems related to communicable disease nursing technics. Also a copy of the record form used to evaluate student proficiency in nursing service is shown. An outline for the presentation of material for each procedure has been set up and consistently followed. This is complete, giving the purpose, the general instructions, the equipment needed, the steps in the procedure, and references. Throughout the entire book, emphasis is given to the need for kindly consideration of the individual patient and to a careful use of supplies. A chart in the front of the book indicates that the principles and practice of nursing course is an integration of the basic general, social, biologic and sanitary sciences directed and applied to the end that intelligent nursing service to individuals may result. While these procedures have been established specifically for their use in the associated hospitals of the University of Minnesota School of Nursing, they may very well serve as a guide to many other similar institutions. The joint authors, associated as they were for many years with the University of Minnesota School of Nursing, were intimately acquainted with the specific needs and in the preparation of this book have made a real contribution valuable to the student, the graduate nurse and the teacher. With increase in scientific knowledge, however, methods change and textbooks of this sort of necessity need frequent revision. Because there is so frequently a gap between the demonstrations of ideal procedures in the classroom and the practical daily performance by the students in the wards, where supplies are often limited and time is insufficient, it might be well to supplement each procedure with suggestions of suitable adaptations based on the same fundamental principles but less elaborate than the original procedure. These situations may occur either within the hospital or within the private homes of patients. A manual of this nature is invaluable as an authority for the student nurse and as a reinforcement of classroom teaching and should be in the possession of every student nurse.

**The B. C. G. Vaccine. By K. Neville Irvine, D.M., M.A., B.Ch., Hon. Physician to the Henley War Memorial Hospital. Cloth. Price, $1.75. Pp. 70. New York & London: Oxford University Press, 1934.**

This book presents a history of attempts to immunize against tuberculosis, as well as the beliefs concerning immunity resulting from infection with tubercle bacilli in nature. The author has spent considerable time visiting clinics and laboratories where B C G has been studied and used in both animals and human beings. Moreover, he has made an extensive study of

the literature. The criticism of B C G on the ground that its virulence may return is cited. The author points out that among human beings who die of tuberculosis some time after the administration of B C G it is virtually impossible to prove with certainty whether in any given case the B C G has become virulent, since there are other possibilities, such as the individual having been infected with virulent human bacilli before the vaccine was administered or that infection may have occurred after the vaccine was administered.

The Lübeck disaster, in which seventy-three infants died of tuberculosis after the administration of B C G, is discussed. Criminal proceedings were instituted and the final decision of the court was that the vaccine had been contaminated with virulent micro-organisms. The director of the laboratory was sentenced to two years in prison and one of his co-workers to fifteen months for homicide and inflicting bodily injury through negligence. It is interesting to note that Petroff, who followed the trial carefully, is of the opinion that the verdict was unjust and was based only on inference and not on facts.

Dr. Irvine presents at some length the experimental work that has been attempted to produce immunity in animals, and he calls attention to the statements of a number of workers who believe that the vaccine has a protective value for cattle. He closes the chapter on this subject with a statement to the effect that the results of work are most encouraging in cattle, are not very striking in guinea-pigs, and provided no clue whatever in monkeys. However, the work of Larson, which showed that it has no practical effect on controlling tuberculosis in cattle, is not included.

Considerable space is given to the degree of immunity produced in man by the use of B C G. The author concludes this chapter by stating that "the only conclusion that can be drawn is that statistical evidence on the subject is difficult to produce, and that at the moment the results show that the B C G vaccine produces in man a definite but unmeasured degree of immunity." In his summary he points out that the virulence of B C G can be increased when suitably grown, that it occasionally produces progressive tuberculosis in laboratory animals, that it has not yet been proved to have caused progressive tuberculosis in man and that a definite degree of immunity is produced in cattle, but that in other animals the results are not so clear. He states that a certain increase of immunity is produced in man but that it is impossible to say whether enough protection is produced to warrant the reorganization of the present scheme in England for dealing with tuberculosis. At this point it is interesting to note that England has not adopted B C G largely because fundamental methods of tuberculosis control, consisting largely of finding the open case and breaking contact, is so rapidly decreasing the morbidity and mortality that an uncertain method of immunization has not seemed to offer any advantage. Irvine is of the opinion that research should be begun in England to decide the degree of immunity produced in man. Doubtless, many will take issue with this recommendation on the ground that already a sufficiently large number of persons in Europe and America (more than a million) have had B C G introduced into their bodies and that this should be a sufficiently large number from which to draw final conclusions as to the ultimate benefits or harm produced by B C G. Such conclusions cannot be drawn until after at least two decades, during which the most careful observations must be made on the present material.

**Le diagnostic des phlébites des membres.** Par M. Audier, chef de clinique médicale adjoint à la Faculté de médecine de Marseille. Travail de la clinique médicale du Professeur D. Olmer. Paper. Price, 25 francs. Pp. 179. Paris: G. Doin & Cie, 1935.

This is a valuable addition to the existing French monographs of Ducuing and Delater on phlebitis. The recognition of the initial, preedematous stage is stressed. This stage may last from four to eight days before the fully developed stage of edema appears. The rôle of spasm, on both the arterial and the venous side, is emphasized. The author uses the McClure-Aldrich test extensively to diagnose an early phlebitis and to determine its termination. An excellent bibliography, containing mostly French literature, is given. Being a treatise on diagnosis, nothing is added to the possible prevention and to the abortive treatment of this important malady.

**Hughes' Practice of Medicine.** Edited and revised by Burgess Gordon, M.D., Associate Professor of Medicine, Jefferson Medical College. With sections on Nervous and Mental Diseases, by Harold D. Palmer, M.D., Associate in Psychiatry, Medical School, University of Pennsylvania, and on Diseases of the Skin, by Vaughn C. Garner, M.D., Assistant Professor of Dermatology and Syphilology, University of Pennsylvania. Fifteenth edition. Fabrikoid. Price, $5. Pp. 808, with 61 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1935.

Eulogy of a classic that enters its fifteenth edition is superfluous; hence a review may be confined to pointing out a few omissions and offering certain suggestions. Insoluble bismuth preparations are not mentioned in the chapter on syphilis; according to the consensus, a continuous mode of treatment in early stages of syphilis is preferable to the interrupted one; many will take exception to the recommendation of a two months interval after the first course of injections; a clear outline of a combined treatment with arsenical and bismuth preparations is desirable. Tetrachloro-ethylene, efficacious in the therapy of hookworm disease, should be mentioned. Hexylresorcinol deserves a place among drugs recommended for the treatment of ascarides, whipworms and pinworms, and carbon tetrachloride for elimination of the tapeworm. Brudzinski's test in meningitis is not described. The use of ammonium chloride and phosphoric acid in the treatment of lead poisoning deserves mention. A prescription for relief of eye symptoms in hay fever would be welcome. Carbarsone, chiniofon and vioform, widely employed in the treatment of amebic dysentery, are not mentioned. Undoubtedly such and similar omissions are due to a laudable attitude of skepticism and conservatism of the new editor. The type has been reset, old illustrations have been replaced by new ones, and numerous additions have been made. The purpose of the book, viz., presenting the average picture of disease and its treatment in condensed form for the general practitioner, has been accomplished in an admirable manner. The book fully deserves its popularity.

**A Short Practice of Surgery.** By Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London, and R. J. McNeill Love, M.S., F.R.C.S., Surgeon, Royal Northern and Metropolitan Hospital, London. Second edition. Cloth. Price, 30s. Pp. 987, with 731 illustrations. London: H. K. Lewis & Company, Ltd., 1935.

This work is now presented in one volume and presents many of the advances in surgery since the publication of the first edition. The text follows the same plan as that used by most surgical manuals. The first six chapters consider a general survey of surgical principles as applicable to the body as a whole. The remaining chapters are devoted to the specific organs with their individual pathologic processes. This book should serve as an excellent introduction to surgery for the student and as a reference book for the general practitioner and is to be recommended for such purposes.

**Orthopedics for the Teachers of Crippled Children.** By Samuel W. Boorstein, M.D., F.A.C.S. Cloth. Price, $1.50. Pp. 120. New York: Aldem Publishing Company, 1935.

This monograph was published for teachers and nurses of crippled children. It is based on a series of lectures on orthopedic surgery for a group who were teaching or preparing to teach physically handicapped children. The aim is to help teachers recognize the conditions they are going to encounter and to understand the psychology of the crippled child. The general aim of this series of lectures has been to present the major aspects of the more common conditions that cause physical handicaps. More particularly, the author has endeavored to show how the parent, physician and teacher, by proper cooperation, can go far toward bringing the affected child to almost a normal physical state. He stresses the importance of properly orienting the mental attitude of the child and he outlines the means by which the teacher can become the most important single factor in the child's recovery. The author believes that the future of the child may depend on the teacher he encounters. Many cripples have made a success of life. Such examples as Alexander the Great, Milton, Byron, Helen Keller, Steinmetz and President Roosevelt forcibly illustrate that a brilliant personality may be housed in an asymmetrical body. The appendix contains a list of the cripples who attained success or fame despite the physical handicaps. One

feels certain that Charlie Chaplin would resent the reference to him in this category and Jimmy Durante would not like to be classed as "deformed and repulsive."

The following is a list of some of the better known handicaped who rose to fame:

Abnormality in stature: Charlie Chaplin. Friedrich Hessing, brace maker in Germany, 1858-1918.

Deformed and repulsive: Napoleon, emperor of France, 1769-1821. Edgar Allan Poe, author and poet, 1809-1849.

Hunchback: Michael Angelo, sculptor, 1475-1564.

Paralyzed: Charles Darwin, naturalist, 1809-1849. Charles Dickens, author, 1812-1870. Leonardo da Vinci, artist, died in 1519. Franklin D. Roosevelt, President of the United States. Philip Snowden, chancellor of the exchequer of England.

Lame because of dislocation of hip: Victor Hugo, author, 1802-1885.

Maimed upper extremity: Wilhelm II, ex-kaiser of Germany.

Club-Foot: Lord Byron, poet, 1788-1824. Talleyrand, diplomat, 1754-1838.

With reference to the proper attitude toward braces, the author quotes Dr. Frank D. Dickson of Kansas City, as follows: "To those who need help and support for impaired limbs and backs, braces are true friends and helpmates, but, as with friends, they must be carefully chosen and cherished. Neither friendship nor braces can be expected to stand up under the demands of life if poorly chosen and treated with neglect."

**Surgical Applied Anatomy.** By Sir Frederick Treves, Bart. Ninth edition revised by C. C. Choyce, C.M.G., C.B.E., B.Sc., Professor of Surgery, University of London. Cloth. Price, $4. Pp. 720, with 174 illustrations. Philadelphia: Lea & Febiger, 1934.

This small volume, originally written fifty years ago and now revised by Prof. C. C. Choyce, presents surgical anatomy in practical and readable form. It divides the body into six regions — head and neck, thorax, upper extremity, lower extremity, abdomen and pelvis, and spine and spinal cord — and each is amply covered from the standpoint of the general surgeon as well as the various surgical specialties. Surgery of the blood vessels, which deals with ligations, abnormalities and collateral circulation, is omitted for the sake of brevity. The work is concise but written clearly and simply, though not abundantly illustrated. Its survival as well as its popularity is indicative of its usefulness as a textbook to the senior student and "to the practitioners whose memory of their dissecting room work is growing a little gray."

**Practical Neurological Diagnosis with Special Reference to the Problems of Neurosurgery.** By R. Glen Spurling, M.D., Assistant Clinical Professor of Surgery (in Charge of Neurosurgery), University of Louisville School of Medicine. Cloth. Price, $4. Pp. 233, with 99 illustrations. Springfield, Illinois & Baltimore: Charles C. Thomas, 1935.

The author discusses in three parts the fundamentals of neurologic diagnosis. The first part (145 pages) covers the neurologic diagnosis in general: examination of the cranial nerves, reflexes, brain and spinal cord (the peripheral nerves are omitted). The second part (about thirty pages) is devoted to the cerebrospinal fluid, and in the third part (forty-four pages) he deals with roentgen diagnosis, including encephalography and ventriculography. The review is brief but clear, so that a beginner can derive full benefit from the well written text and good illustrations, many borrowed. Anatomic and physiologic considerations have not been neglected, and only necessary, well established facts have been recorded. Spurling's modest textbook will undoubtedly be of great benefit to students and practitioners in general.

**A New Deal in Liquor: A Plea for Dilution.** By Yandell Henderson, Professor of Applied Physiology, Yale University. Also a Reprinting of an Inquiry into the Effects of Ardent Spirits upon the Human Body and Mind. By Dr. Benjamin Rush. Cloth. Price, $2. Pp. 239, with 5 illustrations. Garden City, N. Y.: Doubleday, Doran & Company, Inc., 1934.

This is a historical, physiologic and sociological monograph on the alcohol problem in society, by a physiologist well known to American physicians for his investigations, especially on the heart, circulation and respiration. As indicated by the subtitle, Dr. Henderson's solution for the liquor problem is dilution; that is, to discourage, by education and appropriate legislation, the consumption of beverages with an alcohol content higher than 15 or 20 per cent. As to this, the author is on the solid ground of established physiologic and medical facts, but he ends his discussion with the pessimistic prophecy "that our future in respect to alcohol will be essentially like our past"; that is, periodic oscillations between the extremes of prohibition and unrestrained indulgence in ardent spirits. The monograph is both readable and reliable. While intended primarily for laymen, it contains matters of much interest to physicians, among which is a reprint of the classic essay by Dr. Benjamin Rush "The Effects of Ardent Spirits on the Human Body and Mind" (1814).

## *Medicolegal*

**Dental Practice Acts: Legislative Prohibition of "Bait Advertising" Upheld.**—The plaintiff, a licensed dentist, sought to restrain the Oregon state board of dental examiners from revoking his license on the ground of unprofessional conduct. The trial court entered a decree of dismissal and the plaintiff appealed to the Supreme Court of Oregon.

The provision of the dental practice act under which the board proposed to revoke the plaintiff's license defined "unprofessional conduct" as follows:

"Advertising professional superiority or the performance of professional services in a superior manner; advertising prices for professional service; advertising by means of large display, glaring light signs, or containing as a part thereof the representation of a tooth, teeth, bridge work or any portion of the human head; employing or making use of advertising solicitors or free publicity press agents; or advertising any free dental work or free examination; or advertising to guarantee any dental service, or to perform any dental operation painlessly. . . ." (Laws of 1933, chapter 166).

The plaintiff contended that the foregoing provision was unconstitutional.

A person who aspires to treat human ailments and thereby invites the confidence of the public to an exceptional degree, said the Supreme Court of Oregon, should be compelled to submit to such regulations as will guard the public as far as possible against fraud and deception. The extent to which the police power may be exercised depends largely on the manner and degree in which the public welfare is involved. Courts, with good reasons, have refused to define police power, for to do so might thus limit it to the detriment of the public welfare. Regulation of professional conduct deemed unduly drastic ten years ago might well be considered reasonable under present conditions. The necessity for legislation rests primarily on the judgment of the legislature. It is only when a legislative act clearly appears arbitrary, capricious, and without reasonable relation to the object sought to be attained that courts will interfere. The challenged statutory regulations were enacted, in the opinion of the court, by the state in the proper exercise of its police power and therefore do not violate the due process clause of the federal and the state constitutions. The statute has for its purpose the elevation of the standards of the dental profession and the prevention of advertising of a character ordinarily used by unscrupulous practitioners to deceive or mislead the public. The fact that the legislation here involved applies only to dentists does not constitute it class legislation and therefore unconstitutional. The state has the power to deal with each profession as a class and in doing so does not violate the equal protection clause of the constitution. The Supreme Court of Oregon affirmed the decree of the lower court, whereupon the plaintiff appealed to the Supreme Court of the United States.

The plaintiff was not entitled to complain of interference with any contracts he had made for display signs and for advertisements in newspapers, said the United States Supreme Court. His contracts were necessarily subject to the reasonable exercise of the protective power of the state. Nor could the plaintiff object because the particular regulation was limited to dentists. The state was not bound to deal alike with all professional classes, or to strike at all evils at the same time or in the same way. It could deal with the different professions according to the needs of the public in relation to each. That the state may regulate the practice of dentistry, prescribing the qualifications that are reasonably necessary, and to that end may require licenses and establish supervision by an administrative board, is not open to dispute. The state may thus afford protection

against ignorance, incapacity and imposition. A state may deny to corporations the right to practice, insisting on the personal obligations of individuals (*State Board of Dental Examiners* v. *Miller*, 90 Colo. 193, 8 P. (2d) 699; *Miller* v. *State Board of Dental Examiners*, 287 U. S. 563, 53 S. Ct. 6). A state may prohibit advertising that tends to mislead the public (*Dr. Bloom Dentist, Inc.* v. *Cruise*, 259 N. Y. 358, 182 N. E. 16; *Id.*, 288 U. S. 588, 53 S. Ct. 320).

The plaintiff insisted, however, that the statute in question prohibits advertising of the character described, although it may be truthful. He contended that the superiority he advertised existed in fact, that by his method he was able to offer low prices and to render a beneficial public service contributing to the comfort and happiness of a large number of persons. But, said the United States Supreme Court, the state court defined the policy of the statute. It said that while, in itself, there was nothing harmful in merely advertising prices for dental work or in displaying glaring signs illustrating teeth and bridge work, it could not be doubted that practitioners who were not willing to abide by the ethics of their profession often resorted to such advertising methods "to lure the credulous and ignorant members of the public to their offices for the purpose of fleecing them." The legislature was aiming at "bait advertising." "Inducing patronage," said the Oregon court, "by representations of 'painless dentistry,' 'professional superiority,' 'free examinations,' and 'guaranteed' dental work" was, as a general rule, "the practice of the charlatan and the quack to entice the public." The state is authorized, continued the United States Supreme Court, to estimate the baleful effects of such methods and to put a stop to them. The legislature was not dealing with traders in commodities, but with the vital interest of public health, and with a profession treating bodily ills and demanding different standards of conduct from those which are traditional in the competition of the market place. The community is concerned with the maintenance of professional standards which will insure not only competence in individual practitioners, but protection against those who would prey on a public peculiarly susceptible to imposition through alluring promises of physical relief. The community is concerned in providing safeguards not only against deception but against practices which would tend to demoralize the profession by forcing its members into an unseemly rivalry, which would enlarge the opportunities of the least scrupulous. What is generally called the "ethics" of the profession is but the consensus of expert opinion as to the necessity of such standards.

It is no answer to say, as regards the plaintiff's claim of right to advertise his "professional superiority" or his "performance of professional services in a superior manner," that he is telling the truth. In framing its policy the legislature was not bound to provide for determinations of the relative proficiency of particular practitioners. The legislature was entitled to consider the general effects of the practices which it described and, if these effects were injurious in facilitating unwarranted and misleading claims, to counteract them by a general rule even though in particular instances there might be no actual deception or misstatement. The Supreme Court of the United States, therefore, affirmed the judgment of the Supreme Court of Oregon.—*Semler v. Oregon State Board of Dental Examiners (Ore.), 34 P. (2d) 311; 55 S. Ct. 570.*

**Hospitals, Charitable: Charitable Status Determinable by Court, Not by Jury.**—The appellee, while a patient at the City Hospital of Akron, sustained a leg burn which he attributed to the negligence of hospital employees in applying a hot water bottle. He sued the hospital and obtained judgment in the trial court, from which the hospital appealed to the court of appeals of Ohio, Summit County.

If the trustees of a public charitable hospital in Ohio exercise reasonable care in selecting and retaining competent physicians, nurses, employees and servants, the hospital is not liable to a patient for damages resulting from the negligence and incompetence of those so selected and retained. A careful review of all the evidence in the case convinced the court of appeals that the hospital was a public charitable institution and was not negligent in the selection or retention of the nurse to whose negligence was attributed the patient's injuries. The trial court erred in not granting the motion of the hospital at the close of all the evidence for a judgment in its favor. As a general rule the question of whether a hospital is a charitable institution or not is not a question of fact that is required to be submitted to a jury but is one of law to be determined by the court.—*City Hospital of Akron v. Lewis (Ohio), 192 N. E. 140.*

## Society Proceedings

### COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 10-14. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Academy of Pediatrics, New York, June 7-8. Dr. Clifford G. Grulee, 636 Church Street, Evanston, Ill., Secretary.

American Association for the Study and Control of Rheumatic Diseases, Atlantic City, N. J., June 10. Dr. Loring T. Swaim, 372 Marlborough Street, Boston, Secretary.

American Association for the Study of Goiter, Salt Lake City, June 24-26. Dr. W. Blair Mosser, 133 Biddle Street, Kane, Pa., Secretary.

American Association for Thoracic Surgery, New York, June 3-5. Dr. Duff S. Allen, 3720 Washington Boulevard, St. Louis, Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., June 6-8. Dr. Henry L. Sanford, 1621 Euclid Avenue, Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Philadelphia, June 10-11. Dr. Volney S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of Medical Milk Commissions, Atlantic City, N. J., June 10-11. Dr. Harris Moak, 360 Park Place, Brooklyn, N. Y., Secretary.

American Child Health Association, Iowa City, June 19-22. Dr. Philip Van Ingen, 50 West 50th Street, New York, Secretary.

American Federation of Organizations for the Hard of Hearing, Cincinnati, June 2-6. Miss Betty C. Wright, 1601 35th Street N.W., Washington, D. C., Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Russell S. Boles, 1901 Walnut Street, Philadelphia, Secretary.

American Heart Association, Atlantic City, N. J., June 11. Dr. A. M. Marvin, 50 West 50th Street, New York, Acting Executive Secretary.

American Laryngological, Rhinological and Otological Society, Toronto, Canada, June 3-5. Dr. Robert L. Loughran, Sharon, Conn., Secretary.

American Neurological Association, Montreal, Canada, June 3-5. Dr. Henry Alsop Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. J. Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary.

American Orthopedic Association, Philadelphia, June 5-8. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.

American Physiotherapy Association, Atlantic City, N. J., June 11-12. Miss Louise Jetter, 17 East Styles Avenue, Collingswood, N. J., Secretary.

American Proctologic Society, Atlantic City, N. J., June 10-11. Dr. Frank G. Runyeon, 1201 Perkiomen Avenue, Reading, Pa., Secretary.

American Radium Society, Atlantic City, N. J., June 10-11. Dr. Edward H. Skinner, 1103 Grand Avenue, Kansas City, Mo., Secretary.

American Society of Clinical Pathologists, Atlantic City, N. J., June 7-9. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, Boston, June 6-8. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Atlantic City, N. J., June 7-8. Dr. Oscar B. Hunter, 1835 Eye Street N.W., Washington, D. C., Secretary.

American Urological Association, San Francisco, June 25-28. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 10-12. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association for Research in Ophthalmology, Atlantic City, N. J., June 11. Dr. Conrad Berens, 55 East 70th Street, New York, Secretary.

Association for the Study of Allergy, Atlantic City, N. J., June 10-11. Dr. Warren T. Vaughan, 808 Professional Building, Richmond, Va., Secretary.

Association for the Study of Internal Secretions, Atlantic City, N. J., June 10-11. Dr. F. M. Pottenger, 1214 Wilshire Boulevard, Los Angeles, Secretary.

Conference of State and Provincial Health Authorities of North America, Atlantic City, N. J., June 15. Dr. A. J. Chesley, State Department of Health, St. Paul, Secretary.

Maine Medical Association, York Harbor, June 23-25. Miss Rebekah Gardner, 22 Arsenal Street, Portland, Secretary.

Massachusetts Medical Society, Boston, June 3-5. Dr. Alexander S. Begg, 8 The Fenway, Boston, Acting Secretary.

Medical Library Association, Rochester, N. Y., June 17-19. Miss Frances N. A. Whitman, 25 Shattuck Street, Boston, Secretary.

Medical Women's National Association, Atlantic City, N. J., June 9-11. Dr. Alice I. Conklin, 55 East Washington Street, Chicago, Secretary.

Minnesota State Medical Association, Minneapolis, June 24-26. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Montana Medical Association of, Helena, July 2-3. Dr. E. G. Balsam, 208½ North Broadway, Billings, Secretary.

National Tuberculosis Association, Saranac Lake, N. Y., June 24-27. Dr. Charles J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

Pacific Northwest Medical Association, Spokane, Wash., June 27-29. Dr. C. W. Countryman, 407 Riverside Avenue, Spokane, Wash., Secretary.

Rhode Island Medical Society, Providence, June 6. Dr. J. W. Leech, 167 Angell Street, Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., June 10-11. Dr. W. C. Spain, 116 East 53d Street, New York, Secretary.

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

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Studies on Structure and Function of Bone Marrow: IV. Bone Marrow in Agranulocytosis. R. P. Custer, Philadelphia.—p. 507.
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Temperature Determinations in Female Pelvis During Diathermy. E. A. Horowitz, D. Derow and W. Bierman, New York.—p. 555.
Acute Primary Diaphragmitis (Hedblom's Syndrome). M. Joannides, Chicago.—p. 566.
Vitamin A Content of Human Liver. P. D. Crimm and D. M. Short, Evansville, Ind.—p. 571.

**Value of Sternal Puncture in Clinical Hematology.**—During the last year Reich employed sternal puncture as a routine procedure in all cases of blood dyscrasias seen in consultation. Sternal puncture is valuable in differentiating the various types of anemia, in establishing the diagnosis of leukemia in doubtful cases and in differentiating aleukemic lymphatic leukemia from agranulocytosis. In one instance it was possible to see tumor cells in the sternal marrow. This method of investigation does much more for the hematologist, however, than aid him in his diagnosis. It gives him an insight into the fundamental processes underlying his observations on the peripheral blood and opens new avenues of clinical research. It is now possible to study the changes in the bone marrow almost as frequently as those in the peripheral blood and to observe the direct effect of therapy on the formative tissue.

**Effective Treatment of Arachnidism by Calcium Salts.**—Gilbert and Stewart review the therapeutic measures in the treatment of arachnidism and present five cases in which they found that intravenous injections of a 10 per cent solution of calcium chloride gave instantaneous and prolonged relief of the pain and at the same time produced immediate relaxation of the muscle spasm so commonly seen in these patients. However, calcium chloride is not given without considerable danger as to its necrotic action on tissue outside a vein. This danger is greatly magnified when its use is attempted in the treatment of children. Therefore, calcium gluconate (10 cc. of a 10 per cent solution, intravenously), which does not have this objectionable feature, was used and found to produce as good results as the calcium chloride. The intramuscular route, advisable for children, gave relief within a minute's time. Calcium lactate orally was ineffective, probably because of its incomplete and slow absorption. The active principle of the venom has not been definitely determined, but it is generally accepted that the toxin directly stimulates the myoneural junctions or that it acts on the nerve endings, as calcium apparently depresses the neuromuscular junctions in muscle or is depressant to most nervous and muscular functions.

**Hypoproteinemic Nephrosis and Its Treatment with Acacia.**—Barach and Boyd cite two cases of chronic lipoid nephrosis, one in a woman, aged 20, and one in a boy, aged. 4. Neither patient showed evidences of improvement until acacia was given intravenously. One patient received eleven injections, totaling 295 Gm. of acacia, the other required only one injection to start the diuresis and bring about a clinical recovery. In both patients there was a striking diuresis following the injections of acacia. Systemic reactions from the injections were mild and without ill effects. The authors employed a 30 per cent solution of acacia with a 4.5 per cent solution of sodium chloride, which should be a clear pale yellow. Darker solutions may cause reactions and should be avoided. This acacia solution is diluted with physiologic solution of sodium chloride to a total volume of 500 cc. and injected slowly.

### American Journal of Orthopsychiatry, Menasha, Wis.

5: 1-86 (Jan.) 1935

The Prison of the Future: Suggestion Number 5. F. C. Richmond, Madison, Wis.—p. 1.
Behavior of Children from Broken Homes. B. Silverman, Montreal. —p. 11.
Personality Changes in Female Adolescents. Karen Horney, Chicago. —p. 19.
Technical Difficulties Encountered in Child Analysis. H. S. Lippman, St. Paul.—p. 27.
Club Activities as an Approach to Study of Personality Make-Up of Problem Children. Florence M. Rosenthal, Cincinnati.—p. 32.
Dissimilar Identical Twins: Results of Brain Injury at Birth. R. L. Jenkins, Chicago.—p. 39.
Delinquency in Cleveland and Cuyahoga County During Depression Period. M. E. Kirkpatrick, Cleveland.—p. 43.
Newer Attitudes Toward Mental Abnormalities. H. E. August, Detroit. —p. 49.
Outlook of a Depressed Patient, Interested in Planned Gambling, Before and After His Attempt at Suicide. N. Israeli, Worcester, Mass. —p. 57.
Therapy of Endocrinopathic Dyslogia in Cretinism. C. H. Voelker, Columbus, Ohio.—p. 64.
Rejoinder to Glueck's Reply to the Critique of One Thousand Juvenile Delinquents. H. B. Elkind and M. Taylor, Boston.—p. 66.

### American Review of Tuberculosis, New York

31: 373-498 (April) 1935

Clinical Improvement of Pulmonary Tuberculosis by Massive Atelectasis: Report of Six Cases. W. E. Adams and J. J. Singer, St. Louis.—p. 373.
*Extrapleural Thoracoplasty in Pulmonary Tuberculosis: Results in a Series of Fifty Cases. J. Head, Chicago.—p. 386.
Thoracoplasty: Report of Fifty Consecutive Cases. P. D. Crimm, J. W. Strayer and C. S. Baker, Evansville, Ind.—p. 393.
First Cases of Pulmonary Tuberculosis Treated by Artificial Pneumothorax in Connecticut. H. F. Stoll, Hartford, Conn.—p. 401.
Pleural Shock. C. H. Cocke, Asheville, N. C.—p. 404.
Pulmonary Tuberculosis in the American Negro: Do Environment and Attitude of Patient Affect His Disease? G. Walsh and H. M. Mason, Fairfield, Ala.—p. 413.
Tuberculosis Among Negro Children, with Especial Reference to Their Resistance to Disease. J. Donnelly, Huntersville, N. C.—p. 429.
Laryngopulmonary Tuberculosis: Review of Twenty Years' Experience. J. P. Dworetzky, Liberty, N. Y.—p. 443.
Pulmonary Syphilis: Report of Case. M. Jacobs, Philadelphia.—p. 453.
*Gastric Acidity in Pulmonary Tuberculosis: Study of Fifty Patients Between the Ages of Twenty and Thirty Years. I. Gray and J. Melnick, Staten Island, N. Y.—p. 460.
Subsurface Growths of Mycobacterium Tuberculosis in Solid Culture Mediums. J. M. Thuringer and H. W. Butler, Oklahoma City.—p. 466.
*The Alternately Expanding and Contracting Tuberculous Cavity. E. Korol, Lincoln, Neb.—p. 475.
Value of Leukocytic Picture in Management of Tuberculosis. J. Kaminsky, Waltham, Mass.—p. 480.
Longevity of Tubercle Bacilli in Sewage and Stream Water. C. Rhines, New Brunswick, N. J.—p. 493.

**Extrapleural Thoracoplasty in Pulmonary Tuberculosis.**—Head gives the early results in fifty thoracoplasties in which different types of operation were used. Fifty-six per cent of the cases are arrested or apparently arrested, 18 per cent are markedly improved and with a favorable prognosis, 18 per cent are improved, 2 per cent are unimproved, 2 per cent of the patients died from the operation and 6 per cent died later of causes unconnected with the procedure. The results in the different groups of cases were in proportion to the completeness of the collapse of the diseased area of the lung. He suggests that, if thoracoplasty is used at the proper time and if a complete collapse of the disease is obtained, the indications for the operation will be considerably extended and the results markedly improved.

**Gastric Acidity in Pulmonary Tuberculosis.**—Gray and Melnick base their conclusions on gastric acidity in pulmonary tuberculosis on a study of fifty tuberculous patients between the ages of 20 and 30 years. 1. In young persons pulmonary tuberculosis produces gastric hypo-acidity in approximately one third and anacidity in one fourth of the patients within a period of from one to four years. Approximately one half of the number show a normal acidity at all times. 2. In male patients a little more than half show normal acidity through a six-year period of disease. Approximately one third show a decrease or absence of acid. 3. In the female patient normal acidity is present in one third, with a decrease or an absence of acid values in two thirds. There is a definite tendency in the women toward a decrease in acid values. 4. The gastric contents show tubercle bacilli in the majority of these young adults. As the acid figures decrease, tubercle bacilli are found more frequently in the contents of the stomach. 5. Gastric symptoms are somewhat more frequent in the female than in the male patient and usually start at an earlier period.

**The Alternately Expanding and Contracting Tuberculous Cavity.**—Korol believes that the condition of the draining bronchus has a determining influence on the size and progress of the cavity. A temporary narrowing of the bronchus will lead to sudden enlargement of the cavity; a return of the lumen to its former size will result in rapid shrinking of the cavity. The narrowing of the draining bronchus may be temporary, owing to catarrhal swelling, granulation tissue, foreign body, caseous material, tenacious sputum or a blood clot. Cavities have thus been seen to reopen or to enlarge following a head cold or an attack of grip. After the bronchial passage has returned to normal the cavity shrinks rapidly. A case is described in which the upper lobe of the right bronchus was partly occluded by a blood clot, which was visualized on the roentgenogram. An enlargement of the cavity in the right upper lobe occurred. After the discharge of the clot the cavity promptly returned to its original size.

## Annals of Surgery, Philadelphia

101: 979-1138 (April) 1935

Rôle of Plastic Surgery in Burns Due to Roentgen Rays and Radium. H. D. Gillies and A. H. McIndoe, London, England.—p. 979.
*Zinc Peroxide in Treatment of Micro-Aerophilic and Anaerobic Infections, with Especial Reference to Group of Chronic, Ulcerative, Burrowing, Nongangrenous Lesions of Abdominal Wall Apparently Due to Micro-Aerophilic Hemolytic Streptococcus. F. L. Meleney, New York. —p. 997.
*Parathyroidectomy for Raynaud's Disease and Scleroderma: Preliminary Report. Alice R. Bernheim and J. H. Garlock, New York.—p. 1012.
Meckel's Diverticulum. C. E. Farr and Madeline Penke, New York.—p. 1026.
Carcinoma of Large Bowel: Part II. Rectum. T. S. Raiford, New York.—p. 1042.
*Surgical Treatment of Rectal Prolapse: New Operation for Its Relief. A. A. Salvin, New York.—p. 1051.
Osteochondritis of Growth Centers. L. M. Overton, Rochester, Minn. —p. 1062.
Fracture of External Condyle of Humerus in Children. J. H. Heyl, New York.—p. 1069.
Avulsion of Epiphysis of Iliac Crest. S. Kleinberg, New York.—p. 1078.
*Ambulatory Method of Treating Fractures of Patella. R. Anderson, Seattle.—p. 1082.
Ankle Bone Block for Paralytic Drop Foot: End Results of Eighty-Five Cases, 1925 to 1932. L. C. Wagner, New York.—p. 1091.
Cystoscopy and Urography. J. P. Robertson and A. B. Lee, Birmingham, Ala.—p. 1101.

**Zinc Peroxide in Treatment of Micro-Aerophilic and Anaerobic Infections.**—Meleney discusses the clinical course of six cases of chronic infection of the abdominal wall, characterized by a slowly developing ulceration without gangrene but with extensive undermining of the skin by the liquefaction of the subcutaneous tissue and the formation of the deep sinuses. Apparently the essential causative organism in these infections was a micro-aerophilic hemolytic streptococcus, preferring anaerobic environment and in most cases found only by anaerobic methods of cultivation. Zinc peroxide in three cases changed the course of the disease favorably and was followed by relatively rapid resolution of the process. In two of these cases, following the use of zinc peroxide, the organisms apparently underwent a striking change, losing their hemolytic and their anaerobic properties. In the laboratory culture mediums, the micro-aerophilic hemolytic streptococci from these cases were rapidly killed when zinc peroxide was added, while their aerobic, nonhemolytic progeny grew luxuriantly. Zinc peroxide has been found to inhibit the growth and kill other micro-aerophilic and anaerobic organisms both in the test tube and in infected wounds consistently enough to permit the author to advise its use more extensively in these infections. In searching the literature the author has not been able to find an adequate description of the clinical course or the bacteriologic features of this disease and he assumes that it is relatively rare, but its chronicity and its severity are indicative of its importance. The disease must not be confused with the acute gangrene of the skin as represented by hemolytic streptococcus gangrene or with the chronic progressive postoperative gangrene of the synergistic type. It may be easily differentiated from these both clinically and bacteriologically if careful consideration is given to the characteristic features of these diseases.

**Parathyroidectomy for Raynaud's Disease and Scleroderma.**—Bernheim and Garlock are of the opinion that disturbances in calcium metabolism are factors in the development of Raynaud's disease and other vasospastic conditions. How disturbances in calcium metabolism produce the manifestations seen in vasospastic conditions is not clear. One function of the parathyroids is to maintain a constant serum calcium level. If patients suffering from vasospastic conditions are given an adequate calcium regimen, many of them will respond favorably. That is, there will be a marked amelioration of symptoms which have been due primarily to vasospasm. When improvement does not take place in spite of prolonged treatment, they feel that a change of a more or less permanent nature has taken place in the parathyroids and that in such instances removal of two or more parathyroid bodies is indicated. Six patients were subjected to parathyroidectomy. Three cases presented generalized scleroderma with moderately severe Raynaud's manifestations in the hands and feet, one advanced sclerodactylia with symptoms of vasospasm of the hands and feet and two Raynaud's disease uncomplicated by changes of the skin. Following operation, a dramatic relief of symptoms due to vasospasm was noted in each instance. The relief of pain and the change in color of the involved extremities to normal occurred within about twenty-four hours. The most astonishing results were noted in the cases of uncomplicated Raynaud's disease. Rapid improvement was noted in the oscillometric determinations both as to range of oscillation and as to degree of spasm. Improvement also in surface temperature was evident. After a lapse of from three months to one year, these patients have continued to do well. Cases of scleroderma continue to improve up to a certain point and then remain stationary. The involved skin becomes noticeably softer, wrinkles return and finger function improves. In the first three cases, two parathyroids were removed. In the other three cases, total excision of two glands and subtotal removal of a third was performed, after isolation of all four parathyroids. In every case the glands presented hypertrophy of varying degrees. Those showing the greatest enlargement were removed. The gland removed from the patient with extensive scleroderma presented an acute parathyroiditis with pronounced infiltration of polymorphonuclear leukocytes. The cases of uncomplicated Raynaud's disease showed marked hyperplasia. The remaining cases failed to show any abnormalities. It is important to isolate all four parathyroids and to exclude the presence of an adenoma before any gland is removed.

**Surgical Treatment of Rectal Prolapse.**—Salvin outlines a method of treating prolapse of the rectum: With the patient in the high Trendelenburg position, a left paramedian abdominal incision was extended from the symphysis to the level of the umbilicus. The uterus was elevated and fixed to the anterior abdominal wall. The recto-uterine peritoneal reflection was incised transversely, two lateral longitudinal incisions extending through the rectal serosa into the mesorectum. The rectum was dissected from the vaginal septum and the sacral excavation, and its perineal and sacral flexures were mobilized. The rectum was attached with Pagenstecher sutures to the left lateral posterior aspect of the ventrofixed uterus, well up and across to the right side. A few more sutures fixed the middle part of the sigmoid to the anterior abdominal wall, the lower part of the sigmoid for a distance of 3 or 4 inches being left entirely free of sutures. This was done in order to prevent

kinking and development of obstruction at the site of fixation of the rectum to the abdominal wall and to form a defensive barrier against the effect of too great peristaltic activity on the transplanted rectum. The bowels were kept constipated seven days with deodorized tincture of opium, when an enema of 5 ounces (150 cc.) of olive oil was given for two days, resulting in a natural movement. Thereafter feces passed normally every day. The sphincters function perfectly, with no involuntary escape of flatus. Normal intestinal function has been restored. The operation presents definite advantages. The low position of the pouch of Douglas is corrected. The prolapsed rectum is elevated and fixed on its entire length to the anterior abdominal wall, thus preventing the possibility of forming a new protrusion in the anterior wall of the rectum. There is no danger of coming in contact with the ureters or injuring the internal iliac vessels. The method of suturing the transplanted intestine to the anterior wall prevents kinking and angulation and possible formation of later intestinal obstruction.

**Ambulatory Method of Treating Fractures of Patella.**—Anderson believes that many advantages follow his method of treating fractures of the patella, which permits immediate ambulation. The fact of walking is most pertinent to injuries of this structure, because the musculature of the knee is more susceptible to atrophy than that of other joints. The method is founded on two principles: (1) reduction by the application of skeletal traction to the upper patellar fragment and (2) immobilization through the agency of a case in which are incorporated both this superior transfixion and a distal anchoring pin passed through the upper end of the tibia.

## Archives of Dermatology and Syphilology, Chicago

**31:** 445-614 (April) 1935

Pigmented Purpuric Lichenoid Dermatitis: Condition Resembling Schamberg's Disease. F. Wise and J. Wolf, New York.—p. 445.
Further Studies in Fungicides: Comparative Evaluation of Phenol Derivatives by Modified Laboratory Procedure. L. B. Kingery, Portland, Ore.; R. Williams and G. Woodward, Eugene, Ore.—p. 452.
Sources of Nickel Eczema: Report of Two Examples and Review of Pertinent Literature. P. D. Foster and F. I. Ball, New York.—p. 461.
*Effect on Skin of Emotional and Nervous States: Etiologic Background of Urticaria, with Especial Reference to Psychoneurogenous Factor. J. H. Stokes, G. V. Kulchar and D. M. Pillsbury, Philadelphia.—p. 470.
Platform Method of Growth of Certain Pathogenic Fungi. J. W. Williams, Cambridge, Mass.—p. 500.
Dyskeratosis Follicularis (Darier's Disease). K. Frost, Los Angeles.—p. 508.
Sebaceous Cyst: Its Importance as Precancerous Lesion. M. J. Stone, Stamford, Conn., and E. A. Abbey, New Haven, Conn.—p. 512.
Colloidal Sulphur in Dermatology. H. E. Miller, San Francisco.—p. 516.
Nutritional Treatment of Acne Vulgaris. C. Lerner, New York.—p. 526.

**A Study of Urticaria.**—Stokes and his associates discuss urticaria as a disease of complex rather than single causation, with groups of predisposing and exciting causes and with special consideration of the psychogenic component. The weak spot in an otherwise fairly complete theoretical chain is at the cortical end, and suggestions for joint investigations are made. In their 100 cases there was a marked familial and hereditary urticariogenic background in 60 per cent. There was a distinct predisposition to urticaria as such in 28 per cent, in addition to the other elements of the allergic (atopic)-neurogenic background. Cutaneous infections were frequent (50 per cent), but of unproved etiologic significance. Constipation was the one gastro-intestinal symptom of major importance. Subjective disturbances of other kinds, including symptoms of disturbances of the gallbladder, were present in only 18 per cent of the cases. Abnormality of the biliary tract occurred in about 50 per cent and hypochlorhydria or achlorhydria occurred in 45 per cent of other groups investigated for the condition. Focal and intercurrent infections have undoubted etiologic importance, the precise weight of which is undetermined. Removal of a focus may or may not help. Urticaria may follow a focal flare-up or a fresh infection. Positive reactions to scratch tests for allergic conditions were obtained in 64 per cent of the cases. Atopic (multiple) sensitivity was observed. The most common allergic concomitants of urticaria were hay fever and vasomotor rhinitis. With regard to the possible causal factors, the largest proportion of the cases exhibited two causes other than the psychogenic, and 75 per cent showed from one to three causes. An atopic and allergic history was most important in the cases due to food allergy and to psychoneurogenic factors. The combination of a psychogenic background with a food excitant appeared in 25 per cent and in seven cases was the sole etiologic factor determined. Abnormal psychoneurogenic elements appeared in the background in 83 per cent of the cases of urticaria, as compared with 24 per cent in a control series of psoriasis, acne and impetigo, but a psychoneurogenic cause operated alone in only 12 per cent. The principal psychogenic elements are: the tension make-up, neuroticism, the worry habit, shocks, family troubles and finance. Sex disturbance was of minor significance. The urticariogenic psychoneurogenic background lies in a personality type rather than in external impinging circumstances. The therapeutic methods employed were the use of an acid-calcium regimen, nonspecific desensitizations, psychotherapy, actinotherapy, dietotherapy and occasionally the administration of atropine and ephedrine. Of the known outcomes, 60 per cent were good ("cures"); improvement occurred in 34 per cent of the patients, and failures in 6 per cent. The exclusion of substances to which the patient gave a positive reaction (scratch tests) and an elimination diet were unsuccessful as therapeutic measures. Attention to several factors in a case rather than to one alone increases the proportion of good results. An unknown proportion of cases of urticaria is self cured. Dogmatic assertion as to sole causes is therefore to be deprecated.

## Archives of Internal Medicine, Chicago

**55:** 533-708 (April) 1935

Cardiac Output and Related Functions Under Basal and Postprandial Conditions: Clinical Study. S. A. Gladstone, New York.—p. 533.
Increase in Circulation Rate Produced by Exophthalmic Goiter Compared with That Produced in Normal Subjects by Work. W. M. Boothby and E. H. Rynearson, Rochester, Minn.—p. 547.
*Incidence of Bacteremia in Pneumonias and Its Relation to Mortality. J. G. M. Bullowa and Clare Wilcox, New York.—p. 558.
*Leukemic Sinus Reticulosis (Monocytic Leukemia) with Intestinal Obstruction: Report of Case with Partial Autopsy. R. B. Haining, T. S. Kimball, Los Angeles, and O. W. Janes, Glendale, Calif.—p. 574.
Xanthomatosis Generalisata Ossium: Report of Case Simulating Osteitis Fibrosa Cystica. D. H. Shelling and A. F. Voshell, Baltimore.—p. 592.
Heart Disease in Patients with Uterine Myoma: Clinical Study of Fifty Cases. F. Fetter and T. G. Schnabel, Philadelphia.—p. 609.
Juvenile Dementia Paralytica: II. Family History, with Especial Consideration of Familial Neurosyphilis. W. C. Menninger, Topeka, Kan.—p. 626.
*Toxemia of Pregnancy: Its Relation to Cardiovascular and Renal Disease: Clinical and Necropsy Observations with Long Follow Up. W. W. Herrick and A. J. B. Tillman, New York.—p. 643.
Oxygen Utilization and Lactic Acid Production in Extremities During Rest and Exercise in Subjects with Normal and in Those with Diseased Cardiovascular System. Soma Weiss and L. B. Ellis, Boston.—p. 665.

**Incidence of Bacteremia in Pneumonias.**—Bullowa and Wilcox believe that the recovery of pneumococci from the blood stream during the course of pneumococcic pneumonia may be prima facie evidence that the protective mechanism which prevents or overcomes bacteremia is at least partially in abeyance. Whether recovery or death will be the outcome in pneumococcic pneumonia depends to a great extent on whether the protective mechanism alone, or aided by serum, suffices to prevent an increase in the number of organisms or to clear the blood of pneumococci after it has been invaded. In most cases, positive blood cultures give unequivocal evidence of the type of pneumococcus responsible for the illness, and the disappearance of bacteremia in response to treatment may be a real measure of efficient specific therapy. In cases in which invasion of the blood continues in spite of therapy, the illness is almost uniformly fatal. The authors list the incidence of bacteremia in connection with the fatality rate for different types of pneumococcic pneumonia in a series of 725 cases due to a single type, occurring over a period of five years. The percentage of invasion of the blood differs for the different types, though in the main the percentages of invasiveness and mortality are approximately the same. The importance of (1) differentiating the types formerly included as group IV or the x group and (2) of typing individual cases for prognosis and eventual treatment, when specific treatment is available, is manifest. Only 3 per cent of pneumococcic pneumonias escape classification at the present time, when typing is carried from I to XXXII (Cooper). The variation in percentage of invasion and fatality from year

to year in different pneumococcus types is evidence of the variations that are encountered from season to season and shows the necessity of extending the testing of any proposed curative substance over a period of several years.

**Leukemic Sinus Reticulosis with Intestinal Obstruction.**—Haining and his associates cite a case of acute monocytic leukemia in a young woman with localized mucosal and submucosal reticulosis in the rectal wall, which assumed the proportions of a tumor. The tumor produced complete intestinal obstruction; clinically the case exactly simulated carcinoma of the rectum with intestinal obstruction. The venous sinuses of the spleen and of the bone marrow and the lymph sinuses of the spleen and of the lymph glands probably are lined by differentiated reticular cells. These cells are similar to the Kupffer cells of the liver. Like the Kupffer cells, they are entirely different from the endothelial cells lining the ordinary blood and lymph channels. The term "reticulo-endotheliosis" applied to monocytic leukemia does not elucidate the fact that the endothelial cells lining the ordinary blood and lymph vessels have nothing to do with the process. Neither does it attempt to distinguish between true reticulum and sinus reticulum (reticulo-endothelium). Monocytic leukemia is probably a sinus reticulosis, whereas myeloid and lymphoid leukemia are probably true reticuloses. There are good grounds for the conception that leukemia is a malignant neoplastic process. Malignant processes and neoplasia are closely associated in the authors' minds with infiltration and with tumor formation. Specific focalization with tumor formation is apparently infrequent in leukemic sinus reticulosis (monocytic leukemia).

**Toxemia of Pregnancy.**—Herrick and Tillman report on 594 cases of toxemia of pregnancy that have been studied by internists during the period of toxic gestation and during a follow-up period averaging five and six-tenths years, with extremes of one and twenty-two years. The death rate in this group was 2.7 per cent, based on the mortality figures for women in general between the ages of 20 and 45 years in the city of New York, which is 0.4 per cent. The mortality in this group was 15.7 per cent. Of the deaths, 80 per cent were from causes within the cardiovasculorenal field. From a medical point of view the cases fall into two groups: The first, and smaller, is associated with a latent or manifest primary glomerulonephritis, and the second, and larger, with hypertensive cardiovascular disease. These differ in their clinical manifestations during the toxemia and in the follow-up period and also in the prognosis and treatment. More than half of the survivors of toxic pregnancy show symptoms and signs of one or the other of these conditions within three years. Eleven cases have come to necropsy. In these the pathologists, independently of the clinic, have described two types of disease: In four cases there were changes typical of chronic glomerulonephritis, and in seven there were changes characteristic of cardiovascular disease with hypertension. The clinical and pathologic evidence suggests a continuous chain of events in cases of toxemia with cardiovascular sequels. The vascular damage of the acute phase of the disease may not be repaired but may become permanent, leading in at least half the cases to the manifestations of hyperpiesis in the follow-up period and to ultimate disclosure at necropsy of characteristics of this generalized disease of the arterial system, which ends in cardiac failure, apoplexy or renal failure through narrowing of the vascular channels supplying the kidneys.

## Arch. of Physical Therapy, X-Ray, Radium, Chicago

16: 129-192 (March) 1935

Specific Therapeutic Exercise in Certain Orthopedic Conditions. J. C. Elsom, Madison, Wis.—p. 135.
Diagnosis and Management of Cutaneous Cancer. G. M. MacKee and A. C. Cipollaro, New York.—p. 139.
Physical Therapy in Chronic Diseases, with Especial Reference to Peripheral Vascular Disease and Ulcerations. I. M. Leavy, New York.—p. 145.
Newer Concept of Infra-Red Radiation in Upper Respiratory Infections. A. R. Hollender, Chicago.—p. 150.
Physiologic Basis of Wet Dressings. H. F. Wolf, New York.—p. 153.
*Prevention of Rheumatism. C. G. A. Biörkman, New York.—p. 155.
Stasis of the Colon. J. S. Hibben, Pasadena, Calif.—p. 159.
The Arthritides and Colon Therapy. J. Gutman, Brooklyn.—p. 162.

**Prevention of Rheumatism.**—Biörkman offers some observations on prophylactic measures against the ravages of this disease. He submits rheumatism as an example of how small and insidious disorders in a muscle or a joint may with irresistible tenacity gradually increase in severity and finally completely wreck a vigorous body and doom it to years of invalidism. He believes that hypothermia is the beginning of this disease, which often completely destroys the main bearings of the locomotor apparatus. Rheumatoid arthritis, osteo-arthritis and their subsequent degenerative stages, proliferative, climacteric and senile types, myositis or fibrositis are but names for different stages and complications of the same disease, which begins with the overlooked and untreated effects of partial or general refrigeration of the body. Rheumatism and its many consequences are pathologic conditions chiefly encountered among people exposed to cold, windy and wet weather; but people living in the tropical or subtropical belt are by no means exempt. Sudden drops in the temperature accompanied by wind and wet during the rainy season explain the frequent incidence of rheumatism in these countries. The author believes that massage, in the prevention of the pathologic fibrous organization in the human locomotor apparatus resultant on exposure to inclement weather and wind, is the only means by which cold edema and its organized by-products can be removed. Rheumatism is not encountered among the better situated classes of people in Europe or America, who as a matter of personal hygiene indulge almost daily in massage. The author concludes that massage is a true prophylactic agent against this devastating disease. It is a fact not to be overlooked, that the popular steam baths and massage of Sweden are important factors in almost completely confining rheumatism to the working classes, who use these baths less frequently than others.

## Canadian Medical Association Journal, Montreal

32: 357-474 (April) 1935

Importance of Bedside Study and Teaching. T. B. Futcher, Baltimore.—p. 357.
Attempt to Inhibit Development of Tar Carcinoma in Mice: Second Report. J. R. Davidson, Winnipeg, Manit.—p. 364.
Bacteriologic Diagnosis of Whooping Cough. N. Silverthorne and D. T. Fraser, Toronto.—p. 367.
Malignant Conditions of Skin and Their Treatment by Radiation. R. K. Paterson, Ottawa, Ont.—p. 371.
*Gonococcic Tenosynovitis of the Hand. D. W. G. Murray and J. R. E. Morgan, Toronto.—p. 374.
Otitis Media and Mastoiditis Due to Pneumococcus Type III. E. E. Scharfe, Montreal.—p. 376.
Serum Phosphatase in Toxic and Hemolytic Jaundice. A. R. Armstrong and E. J. King, Toronto.—p. 379.
Cancer of the Breast. M. Cutler, Chicago.—p. 383.
Total Ablation of Thyroid Gland in Treatment of Angina Pectoris and Congestive Heart Failure. J. Heyburn, Toronto.—p. 390.
Medicolegal Applications of Blood Grouping, with Especial Reference to Agglutinogens M and N of Landsteiner and Levine. A. S. Wiener, Brooklyn.—p. 393.
Diagnosis and Treatment of Intestinal Amebiasis. J. C. Paterson, Sarnia, Ont.—p. 399.
Myasthenia Gravis: Report of Case. P. S. Irwin, Honolulu, Hawaii.—p. 405.
Pulmonary Atelectasis Resulting from Hemoptysis. T. G. Heaton, Toronto.—p. 409.
Dermatitis Exfoliativa: Report of Two Cases. J. W. Auld, Calgary, Alta.—p. 411.
*Primary Thrombosis of the Axillary Vein. H. C. Ballon, Montreal.—p. 414.
Avertin as an Auxiliary Therapeutic Measure in Tetanus. H. S. Mitchell, Montreal.—p. 415.
Non-Asylum Treatment for Acute Mania. E. C. Menzies, St. John, N. B.—p. 418.

**Gonococcic Tenosynovitis of the Hand.**—Murray and Morgan discuss a case of gonorrheal tenosynovitis, which occurred six days after the first appearance of an acute gonorrheal urethritis. They believe that at the time of the patient's slight injury of the hand the man was suffering from a gonococcic bacteremia. Trauma produced a minor resistant focus, with localization of the organism at that point. The authors believe that this type of tenosynovitis occurs with greater frequency than is generally recognized. The probability of the organism being the gonococcus was recognized before operation. The presence of a frank suppurative tenosynovitis determined the course of treatment. While a gonorrheal infection of the tendon sheaths may occur without suppuration and as such may be treated conservatively, the presence of pus justifies incision and drainage. The result of this method of treatment was good and the patient now suffers but little disability.

**Primary Thrombosis of the Axillary Vein.**—Ballon presents a case of primary thrombosis of the axillary vein in which the presence of boils previous to the development of the

thrombosis may have been a complicating factor. The incision of the abscess on the left arm may have been a contributing or predisposing factor. All conditions that may produce mechanical compression of the axillary vein must first be excluded before a diagnosis of primary thrombosis of the axillary vein is made. Complete roentgen studies were made in the case reported, and such conditions as tumor, aneurysm, fracture, cervical rib, tuberculosis and pleurisy were excluded.

## Canadian Public Health Journal, Toronto

26: 105-156 (March) 1935

Propose Scheme of Health Insurance for Manitoba. J. C. McMillan, Winnipeg, Manit.—p. 105.
Advisability of Standardization of Vitamin Content of Certain Foods. E. W. McHenry, Toronto.—p. 124.
Daylight Glare in School Rooms. Ruth C. Partridge and D. L. MacLean, Toronto.—p. 127.
Activities in Province-Wide Program for Control of Tuberculosis. R. G. Ferguson, Fort San, Sask.—p. 130.
Treatment of Creamery and Cheese Factory Wastes. A. V. DeLaporte, Toronto.—p. 138.

## Delaware State Medical Journal, Wilmington

7: 41-60 (March) 1935

Results of High Voltage X-Ray Treatment in Metastatic Carcinoma of Bones. G. C. McElfatrick, Wilmington.—p. 41.
The Pathology of Bladder Tumors. D. M. Gay, Wilmington.—p. 48.
Therapeutics of Tin. E. Podolsky, Brooklyn.—p. 51.

## Endocrinology, Los Angeles

19: 129-254 (March-April) 1935

Physical Associations in Adults with Behavior Problems. A. W. Rowe and Miriam Van Waters, Boston.—p. 129.
Experiment to Produce Lactation in Castrate Women. A. A. Werner, St. Louis.—p. 144.
Endocrine Interrelations During Pregnancy. H. Selye, J. B. Collip and D. L. Thomson, Montreal.—p. 151.
Changes in Anterior Hypophysis of Male Albino Rat After Castration and Experimental Cryptorchism. E. T. Ellison and J. M. Wolfe, Nashville, Tenn.—p. 160.
*Results of Preoperative Administration of Extract of Pregnancy Urine: Study of Ovaries and of Endometriums in Hyperplasia of the Endometrium Following Such Administrations. E. C. Hamblen, Durham, N. C.—p. 169.
Hormonic Symptomatology of Thyroid: To What Extent Is It Explicable on Basis of Altered Metabolic Rate? J. H. Means and J. Lerman, Boston.—p. 181.
*Concerning Anterior Pituitary-Gonadal Interrelations. W. O. Nelson, Columbia, Mo.—p. 187.
Concentration of Gonad-Stimulating Hormone in Blood Serum and of Estrin in Urine Throughout Pregnancy in the Mare. H. H. Cole and F. J. Saunders, Davis, Calif.—p. 199.
Case of Pituitary Infantilism Treated with Commercial Anterior Pituitary Preparations. G. B. Dorff, Brooklyn.—p. 209.
Evaluation of Periodical Literature from the Standpoint of Endocrinology. Jennie Gregory, Boston.—p. 213.

**Preoperative Administration of Extract of Pregnancy Urine.**—Hamblen studied the ovaries and the endometriums of twenty-four patients, nine with known normal menstrual cycles, eleven with hyperplasia of the endometrium and four with amenorrhea. A commercial anterior pituitary luteinizing extract of pregnancy urine was used. The single, subcutaneous injection has varied from 100 to 400 rat units. The frequency of dosage has varied from one to four times daily. The total dosage has ranged from 800 to 8,200 rat units. The duration of injections was from three to thirteen days. The time elapsing from the last injection to the laparotomy varied from one to fourteen days. Injections were given on the second to the thirty-second day of the menstrual cycle. Laparotomy was performed on the eleventh to the fortieth day of the cycle. At the time of laparotomy a careful gross study of both ovaries was recorded, including the size of the ovaries, the presence and relative number of small cysts, and the presence or absence of recent or old corpora lutea. Endometrial specimens were obtained before the administration of the extract and after the injections of extract at the same time as the ovarian specimens. Anterior pituitary luteinizing extract does not affect primordial or early follicles and it acts primarily on maturing and mature ones, increasing the degenerative changes commonly observed and probably producing cystic degeneration. The response in the younger age group (immaturity) is different from that of the older age group (maturity) of patients with hyperplasia. Recent corpora lutea are produced apparently in the latter group by injections of anterior pituitary luteinizing extract. Hemorrhage into or about follicles constituted an unimportant observation. Endometrial changes were produced in a single instance.

**Anterior Pituitary-Gonadal Interrelations.**—Nelson discusses cell counts on the anterior lobes from sixty-eight normal male and fifty-six female rats showing that the male gland has a higher percentage of basophils and acidophils and a lower percentage of chromophobes than that of the female. The anterior pituitaries from twenty-five castrate male and seventeen spayed female rats that had been injected with estrogenic substance showed a profound decrease in the percentage of both castration cells and nonvacuolated basophils. Evidence indicates a fundamental difference in the sensitivity to the gonad hormone on the part of the male and female hypophysis, and that may explain the cyclic character of female reproduction and the absence of a cycle in the male. In the female the production of the estrogenic hormone attains periodically a concentration sufficient to suppress the production of the gonadotropic hormone. As the production of the estrogenic hormone decreases with the lack of stimulation, the gonadotropic hormone is secreted again and a new cycle is initiated. In the male the hypophysis is less easily influenced by gonad hormone with the result that apparently it is never suppressed to the extent that the male reproductive functions exhibit cyclic characteristics. The pituitary-gonadal interrelations also appear to be concerned in the control of certain other physiologic processes. In guinea-pigs—twenty-six males whose mammary glands had been caused to proliferate through the agency of ovarian grafts or estrogenic injections, eight parturient females, and seventeen nonpregnant females—it was possible to promote or suppress lactation by varying the amounts of lactogenic hormone and estrogenic substance that were administered. Estrogenic substance also has been shown to be active in the control of experimental pancreatic diabetes. In four monkeys the profound hyperglycemia and glycosuria that followed pancreatectomy were abolished by the injection of estrogenic substance.

## Indiana State Medical Assn. Journal, Indianapolis

28: 113-170 (March 1) 1935

Treatment of Extensive Cutaneous Burns: Ultraviolet Light as Adjunct to Repair of Burn Defects. H. M. Trusler, Indianapolis.—p. 113.
Chronic Nontuberculous Lung Infections: Diagnosis. J. O. Parramore, Crown Point.—p. 118.
Management of Fractures of Neck of Femur. E. B. Ruschli and H. G. Sichler, La Fayette.—p. 121.
Psychotherapy in General Practice of Medicine. F. G. Ebaugh, Denver.—p. 124.
Essentials of Medical Progress. O. J. Fay, Des Moines, Iowa.—p. 129.
Allergy in Its Relation to Otolaryngology. K. L. Craft, Indianapolis.—p. 133.

28: 171-212 (April 1) 1935

Collapse Therapy and Pulmonary Tuberculosis. W. C. Moore, Muncie.—p. 171.
Qualitative Blood Cell Changes in the Human Due to Vitamin A. P. D. Crimm and D. M. Short, Evansville.—p. 175.
Cancer Therapy and the General Practitioner. C. A. Stayton, Indianapolis.—p. 177.
Six Fall Hay Fever Seasons in Indiana. O. C. Durham, North Chicago, Ill.—p. 182.
Pelvic Varicosities. J. F. Wynn, Evansville.—p. 184.
The Nervous Patient. O. A. Turner, Madison.—p. 186.
Hernia Through Epiploic Foramen: Case Report. R. B. Smallwood, Bedford.—p. 188.

## Iowa State Medical Society Journal, Des Moines

25: 115-168 (March) 1935

Bleeding Peptic Ulcer. W. M. Fowler and H. M. Hurevitz, Iowa City.—p. 115.
Torsion of Pedicle in Ovarian Cysts Following Delivery: Frequency and Symptomatology: Case Reports. E. Von Graff, Des Moines.—p. 118.
Malpractice. E. D. Mitchell, Council Bluffs.—p. 124.
Irradiation Treatment of Superficial Malignancies. H. D. Kerr, Iowa City.—p. 129.
Carcinoma of Breast. J. J. Noonan, Marshalltown.—p. 131.
Postoperative Accidents and Complications. E. B. Howell, Ottumwa.—p. 134.
Roentgen-Ray Considerations in Injury Cases. W. S. Greenleaf, Atlantic.—p. 137.
Methods of Treatment in Malpositions of Uterus. D. C. Conzett, Dubuque.—p. 139.
Rocky Mountain Spotted Fever in Iowa. C. F. Jordan, Des Moines.—p. 142.
Rocky Mountain Spotted Fever: Report of Two Iowa Cases with Recovery. H. E. Stroy, Osceola.—p. 145.
Sudden Deaths from Syphilitic Aortitis. F. P. McNamara, Dubuque.—p. 147.

## Journal of Bacteriology, Baltimore

29: 223-332 (March) 1935

The Pigment of Bacillus Violaceus: I. Production, Extraction and Purification of Violacein. W. C. Tobie, Cambridge, Mass.—p. 223.
New Species of Genus Bacillus Exhibiting Mobile Colonies on Surface of Nutrient Agar. J. L. Roberts, Galveston, Texas.—p. 229.
Significance of Marine Bacteria in Fouling of Submerged Surfaces. C. E. Zobell and Esther C. Allen, La Jolla, Calif.—p. 239.
Decomposition of Salts of Organic Acids by Bacteria of Genus Salmonella. A. A. Hajna, Baltimore.—p. 253.
Further Studies on Spontaneous Variations of Torula Pulcherrima. Laila Punkari and A. T. Henrici, Minneapolis.—p. 259.
Identification of Von Hibler's "Bacillus V1" as Bacillus Carnis (Klein). I. C. Hall and N. D. Duffett, Denver.—p. 269.
Species of Salmonella Producing Water-Soluble Pigment. M. W. Deskowitz and L. Buchbinder, New York.—p. 293.
Persistence of Avian Tubercle Bacilli in Soil and in Association with Soil Micro-Organisms. C. Rhines, New Brunswick, N. J.—p. 299.
Further Studies on Frozen Vegetables. R. P. Straka and L. H. James, Washington, D. C.—p. 313.
Bactericidal Action of Azochloramid (N-N-Dichloroazodicarbonamidine). F. C. Schmelkes and Elizabeth S. Horning, Belleville, N. J.—p. 323.

## Journal of Experimental Medicine, New York

61: 299-446 (March 1) 1935

Nutritional Edema in the Dog: I. Development of Hypoproteinemia on Diet Deficient in Protein. A. A. Weech, E. Goettsch and E. B. Reeves, New York.—p. 299.
Renal Damage Following Ingestion of Diet Containing Excess of Inorganic Phosphate. E. M. MacKay, La Jolla, Calif., and J. Oliver, Brooklyn.—p. 319.
*Serologic Differentiation of Pathogenic and Nonpathogenic Strains of Hemolytic Streptococci from Parturient Women. Rebecca C. Lancefield, New York, and R. Hare, London, England.—p. 335.
Studies on Uncomplicated Coryza of Domestic Fowl: III. Effect of Extranasal Injection on Growth of Fowl Coryza Bacillus. J. B. Nelson, Princeton, N. J.—p. 351.
Id.: IV. Susceptibility After Extranasal Injection of Fowl Coryza Bacillus. J. B. Nelson, Princeton, N. J.—p. 361.
Phenomenon of Local Skin Reactivity to Bacillus Tuberculosis: I. Skin Preparatory and Reacting Potencies of Tuberculin, Old Tuberculin, and Bacillus Tuberculosis Culture Filtrates. G. Shwartzman, New York.—p. 369.
Grading of Local Skin Reactivity to Bacterial Filtrates. G. Shwartzman, New York.—p. 383.
Colony Morphology of Tubercle Bacilli: I. Presence of Smooth Colonies in Strains Recently Isolated from Sources Other Than Sputum. K. C. Smithburn, New York.—p. 395.
Experimental Studies on Encephalitis: II. Specific Virus Character of Infectious Agent from Cases of St. Louis and Kansas City Encephalitis, 1933. L. T. Webster, New York, and G. L. Fite, Baltimore.—p. 411.
Transmission of Myeloid Leukemia of Mice: Its Relation to Myeloma. J. Furth, New York.—p. 423.

**Differentiation of Strains of Hemolytic Streptococci.**—Lancefield and Hare show by precipitin tests that the majority of strains from definite infections of the uterus are members of group A. The majority of hemolytic streptococci from the birth canal that do not bring about active infections are not members of this group. Most of them fall into either group B or group D, the former being identical with certain strains causing bovine mastitis, and the latter resembling Streptococcus faecalis more than Streptococcus pyogenes. These two groups have been confirmed serologically. The remaining noninfective strains fell into groups C, F or G or were unclassified. In their biochemical reactions they resemble group A. That they differ immunologically from group A strains can hardly be doubted. The differentiation, by a comparatively easy precipitin test, of hemolytic streptococci that are potentially infective from those which are harmless to man is entirely feasible. It seems highly probable that the human nasopharynx is the main reservoir of group A strains in nature. Because of this and because of the great rarity of group A hemolytic streptococci in the normal vagina before childbirth, there can be little doubt that the majority of puerperal hemolytic streptococcus infections are due to inoculation from some other source than the patient's genital tract and probably arise from the nasopharynx in the patient or attendants. Hemolytic streptococci may be harbored in the birth canal before or after delivery without causing disease, provided they belong to serologic groups other than group A. Group A hemolytic streptococci, on the contrary, are usually absent from the vagina before delivery or are exceedingly rare, as the authors show by the failure to find organisms of this group in cultures taken before delivery from their series of patients. However, group A hemolytic streptococci, if present in the vagina before delivery, almost always give rise to serious puerperal infection. Accordingly, group A strains are probably the only hemolytic streptococci capable of causing definite puerperal infection in the human species, and such infection almost invariably occurs if group A hemolytic streptococci are present in the vagina.

61: 447-592 (April 1) 1935

*Neutralization Test in Poliomyelitis: Comparative Results with Four Strains of Virus. J. R. Paul and J. D. Trask, New Haven, Conn.—p. 447.
Effect of Various Protein Rations on Serum Protein Concentration of Rat. A. L. Bloomfield, San Francisco.—p. 465.
Further Studies with Toxic Serum Extracts of Hemolytic Streptococci. Julia T. Weld, New York.—p. 473.
Experimental Studies on Encephalitis: III. Survival of Encephalitis Virus (St. Louis Type) in Anopheles Quadrimaculatus. L. T. Webster, Anna D. Clow and J. H. Bauer, New York.—p. 479.
Primary Serum Toxicity as Demonstrated by the Chicken Embryo. E. Witebsky and E. Neter, New York.—p. 489.
Cultivation of Virus of Grasserie in Silkworm Tissue Cultures. W. Trager, Princeton, N. J.—p. 501.
*Studies on Hemolytic Streptococcus of Human Origin: I. Observations on Virulent, Attenuated and Avirulent Variants. H. K. Ward and C. Lyons, Boston.—p. 515.
Id.: II. Observations on Protective Mechanism Against Virulent Variants. C. Lyons and H. K. Ward, Boston.—p. 531.
Studies on Meningococcus Infection: VII. Study of an Isolated Epidemic. G. Rake—p. 545.
Precipitin Reaction Between Type III Pneumococcus Polysaccharide and Homologous Antibody: II. Conditions for Quantitative Precipitation of Antibody in Horse Serums. M. Heidelberger and F. E. Kendall, New York.—p. 559.
Id.: III. Quantitative Study and Theory of Reaction Mechanism. M. Heidelberger and F. E. Kendall, New York.—p. 563.

**Neutralization Test in Poliomyelitis.**—In experiments devised to compare the neutralizing action of normal adult human serums on different strains of poliomyelitis virus and to fill in certain gaps in their series of neutralization tests with different strains of virus on different types of cases in different age groups, Paul and Trask made the following observations: 1. The difference between two human and two passage strains of the virus when tested by the neutralization method amounted to about 25 per cent, and there was less power in normal adult serums to neutralize human than passage strains of virus. 2. The differences between the two human strains amounted to 15 per cent, and between the two passage strains to 8 per cent, the last figure falling within the limits of the experimental error of the method. The extent to which these observations affect certain concepts with regard to the epidemiology of poliomyelitis based on experiments on passage strain neutralization cannot be determined from the data presented in this paper, except that they more or less confirm the view previously derived from passage strain experiments that from 70 to 95 per cent of normal urban adults possess in their blood a substance which neutralizes poliomyelitis virus in a given amount. However, certain other indications appear when the present results are supplemented by those that the authors obtained previously. Primarily, they found no relation between the clinical acquisition of poliomyelitis and the presence of substance in the serum which neutralizes a passage strain of poliomyelitis virus. With a passage strain the results seem rather to bear a closer relationship to age than to illness. With a human strain they obtained results in which there is some evidence, shown only in the juvenile group, that acquisition of the clinical disease is accompanied by the appearance of antiviral properties in the blood.

**Studies on Hemolytic Streptococcus of Human Origin.**—Ward and Lyons describe four common variants of the hemolytic streptococcus of human origin and designate them the F, M, attenuated M and C variants. The F and M variants have been isolated only from the blood stream in streptococcic infections. Only the M, however, has any primary virulence for the mouse. Both these variants resist phagocytosis in human blood under suitable conditions, and this appears to be a reliable test for human virulence. The attenuated M variant, found only in laboratory cultures, has a capsule as well developed as that of the virulent variants and yet does not resist phagocytosis. The C variant has no capsule and is readily phagocyted. It appears to correspond to the avirulent variant in other species. The authors are inclined to regard the F variant as the parent form of the Streptococcus haemolyticus of human origin, since they have encountered it only in primary isolation. On the other hand, all the other variants may be derived from the F. While the F variant was isolated from the blood stream the

whole year round, the M variant was isolated in blood cultures only during the winter months—the so-called streptococcus season. Since it is known that the M variant may be derived from the F by mouse passage, it is conceivable that the winter prevalence of the M variant may be due to the high incidence of infections of the upper respiratory tract and consequent frequent passage of the hemolytic streptococcus from one patient to another.

## Journal of General Physiology, New York

18: 433-598 (March 20) 1935. Partial Index

Crystalline Chymotrypsin and Chymotrypsinogen: I. Isolation, Crystallization and General Properties of New Proteolytic Enzyme and Its Precursor. M. Kunitz and J. H. Northrop, Princeton, N. J.—p. 433.
Method for Determining Rennet Activity of Chymotrypsin. M. Kunitz, Princeton, N. J.—p. 459.
Electrical Factors Influencing Rate of Filtration of Aqueous Electrolyte Solutions Through Cellophane Membranes. H. L. White, Betty Monaghan and F. Urban, St. Louis.—p. 515.
Comparison of Electrophoretic Velocities of Cellophane and Collodion Suspensions with Electro-Osmotic Velocities Through Membranes of Same Materials. Betty Monaghan, H. L. White and F. Urban, St. Louis.—p. 523.
Studies on Blood Coagulation: I. Rôle of Prothrombin and of Platelets in Formation of Thrombin. H. Eagle, Philadelphia.—p. 531.
Id.: II. Formation of Fibrin from Thrombin and Fibrinogen. H. Eagle, Philadelphia.—p. 547.

## Journal of Lab. and Clinical Medicine, St. Louis

20: 567-674 (March) 1935

Volume Thickness Index of Erythrocyte of Man. R. L. Haden, Cleveland.—p. 567.
Effect of Thymol on Progress of Rabbit Moniliases. W. D. Stovall, S. B. Pessin and Lois Almon, Madison, Wis.—p. 572.
Study of Some of the Factors Influencing the Sedimentation Test. F. Boerner and H. F. Flippin, with technical assistance of Rebecca Goodman, Philadelphia.—p. 583.
Observations Relating to Specificity of Dick Test. H. E. Smiley, Providence, R. I.—p. 589.
Effects of Blood Transfusions on Donors. J. W. Martin and J. T. Myers, Omaha.—p. 593.
The Doctor as Inventor. E. Podolsky, Brooklyn.—p. 598.
Carcinoma and Schistosomiasis of Appendix: Case Report. J. Levine and R. A. Marin, New York.—p. 602.
*Familial Renal Glycosuria. M. S. Brown Jr. and R. Poleshuck, New York.—p. 605.
Significance of Iron and Copper in Bile of Man. E. S. Judd and T. J. Dry, with technical assistance of Mary Sue Bledsoe, Rochester, Minn.—p. 609.
*Amidopyrine and Granulopenia: Reappearance of Granulocytosis in Case of Recurring Agranulocytosis After Large Doses of Amidopyrine: Clinical Experiment. L. R. Limarzi and Iva G. Murphy, Chicago.—p. 616.
Action Potentials from Intercostal Muscles Before and After Unilateral Pneumectomy. P. M. Anderson and D. B. Lindsley, Boston.—p. 623.
Complement Fixation in Diagnosis of Lymphogranulomatosis Venerea. W. E. Coutts and T. Ponce, Santiago, Chile.—p. 629.
Technic of Urinalysis in Fat Embolism: Clinical and Experimental Study. F. J. Jirka and C. S. Scuderi, Chicago.—p. 631.
Simple and Accurate Method for Standardizing Cell Volume Percentage of Any Blood for Sedimentation Test. H.-L. Chung, Peiping, China.—p. 633.
Value of H and O Agglutination Technic in Routine Widal Examinations. Rosemary Bole, Columbus, Ohio.—p. 638.
Determination and Recognition of Lead in Biologic Tissue and Fluids. C. N. Myers, Florence Gustafson and B. Throne, New York.—p. 648.
Fractional Urine (Diabetic) Chart. D. W. Kramer, Philadelphia.—p. 657.
Rapid Method for Demonstration of Negri Bodies. J. R. Dawson Jr., Nashville, Tenn.—p. 659.

**Familial Renal Glycosuria.**—Brown and Poleshuck present four cases as additional evidence of the familial or hereditary nature of the condition known as renal glycosuria. These observations help to substantiate the belief that it is an entirely benign condition. Two of the patients have been known to have glycosuria for seventeen and sixteen years, respectively. At its discovery the diagnosis of diabetes mellitus was made in each case and the treatment for that disease was instituted. The other two patients have absolutely normal dextrose tolerance tests. All these patients showed dextrose in all specimens of urine examined, in one patient even during the hour in which the blood sugar level range was from 85.8 to 30 mg. per hundred cubic centimeters. In spite of the persistent loss of sugar in the urine there has been no loss of weight, or polyuria, in any of the four patients. In fact, one patient gained 21 pounds (9.5 Kg.) in a period of six weeks on a high caloric diet as reported by Brown and Ralli, and this diet in no way affected his carbohydrate tolerance. In addition, over a period of two years there has been no change in his carbohydrate tolerance as shown by dextrose tolerance curves.

**Amidopyrine and Granulopenia.**—Limarzi and Murphy report a case of recurring granulopenia in which there were recoveries from four attacks. In all four there was granulopenia and in three a leukopenia. Analysis of the differential blood counts shows that the case was one of granulopenia and differentiates it from aleukemic lymphadenosis and aplastic anemia. Recovery from the first attack followed a blood transfusion that was associated with a severe immediate and delayed reaction. Recovery from the second and third attacks occurred spontaneously. Recovery from the fourth attack occurred after the administration of yellow bone marrow and liver extract (by mouth and parenterally). In the fourth attack large doses of amidopyrine (a total of 370 grains, or 24 Gm.) were administered during the malignant phase and were continued into the recovery phase, showing that it was not possible to depress the granulocytosis by the administration of amidopyrine. Since recovery from the last attack, doses of 15 grains (1 Gm.) of amidopyrine have been given without influencing the total or differential white count. The amidopyrine patch test was negative.

## Journal of Nutrition, Philadelphia

9: 395-532 (April 10) 1935

Vitamin B and G Content of Prunes. Agnes Fay Morgan, Marion J. Hunt and Mildred Squier, Berkeley, Calif.—p. 395.
Relation Between Basal Metabolism and Endogenous Nitrogen Metabolism, with Particular Reference to Estimation of Maintenance Requirement of Protein. D. B. Smuts, Urbana, Ill.—p. 403.
Rates of Absorption and Glycogenesis from Various Sugars. S. Feyder and H. B. Pierce, Rochester, N. Y.—p. 435.
Fat Formation from Sucrose and Glucose. S. Feyder, Rochester, N. Y.—p. 457.
Effects of Deficiency of Iodine and Vitamin A on Thyroid Gland of Albino Rat. Helen M. Coplan and Myra M. Sampson, Northampton, Mass.—p. 469.
Utilization of Gelatin, Casein and Zein by Adult Rats. Inez D. Mason and L. S. Palmer, St. Paul.—p. 489.
Vitamin C. Requirement of Guinea-Pig. Margaret Dann and G. R. Cowgill, New Haven, Conn.—p. 507.
Effects of Lactose on Growth and Longevity. E. O. Whittier, C. A. Cary and N. R. Ellis, Washington, D. C.—p. 521.

## Journal of Urology, Baltimore

33: 331-426 (April) 1935

Clinical Importance of Congenital Renal Hypoplasia. D. N. Eisendrath, Paris, France.—p. 331.
*Effect of Morphine on Human Ureter. N. F. Ockerblad, H. E. Carlson and J. F. Simon, Kansas City, Kan.—p. 356.
Value of Cystometry. M. Muschat, Philadelphia.—p. 366.
*Some Endocrinologic Relationships of Prostatic Hypertrophy: Clinical and Experimental Studies: Preliminary Report. C. L. Deming, R. H. Jenkins and Gertrude van Wagenen, New Haven, Conn.—p. 388.
Principles of Treatment of Hypospadias. H. Cabot, W. Walters and V. S. Counseller, Rochester, Minn.—p. 400.
Cyst of the Urachus. J. B. Cross, Buffalo.—p. 408.
Method for Suprapubic Suction. J. W. Draper Jr., New York.—p. 411.
Device for Permanent Suprapubic Drainage Following Cystostomy. W. C. Stirling, Washington, D. C.—p. 413.
New Instruments to Facilitate Prostatic Resection. O. A. Nelson, Seattle.—p. 414.
New Device for Securing Biopsy Specimens. O. S. Lowsley, New York.—p. 417.
Silver Solution in the Lumen of the Vas After Bladder Instillation. V. J. O'Conor, Chicago.—p. 422.

**Effect of Morphine on Human Ureter.**—Ockerblad and his associates studied the effect of morphine on the intact human ureter in twenty-four patients by means of hydrophorographic tracings by Trattner's method, and some were subjected to roentgenoscopy. Morphine given subcutaneously in the usual clinical doses was found to increase markedly the ureteral tone and the amplitude of the contractions. The larger the dose, the greater the effect. The effect is produced by morphine in from two to five minutes and persists for at least three hours and probably much longer. Atropine in doses of $\frac{1}{100}$ grain (0.00065 Gm.) invariably stops the contractions of the morphine stimulated ureter with a consequent loss of tone but does not act strikingly or constantly when given alone. The usual notion that morphine quiets the ureter is wrong and the view based on the experimental data which indicates that morphine stimulates the ureter is the correct one.

**Endocrinologic Relationships of Prostatic Hypertrophy.**—Deming and his co-workers in their approach to the study of relationships between the prostate and the endocrine glands studied the influence of castration on the genital tract of three monkeys and two controls. In the castrated animal the seminal vesicles as a whole are smaller and the diameter of the individual tubule is lessened. The prostate has lost in volume. Histologic sections show the expected decrease in height of prostatic epithelium and the size of the individual tubules. Despite the atrophy demonstrated, the effect of castration is not so precipitate or complete as it is in the rat. The authors now believe that prostatic hypertrophy arises from the right and left lateral lobes of the prostate and the prespermatic lobe of the prostate and from the submucosal glands of the prostatic urethra and trigon. The anatomic origin of prostatic hypertrophy has an important bearing on the endocrine relationship. Hypertrophy of the submucosal glands arises from the prostatic urethra and should not be influenced by the pituitary-testicle-prostatic relationship. Experimental studies in the castrated monkey are compatible with this idea, as castration failed to show any change in the mucosa of the prostatic urethra. Hypertrophy of the prostate has been the subject of an endless dispute as to whether it is a hyperplastic process or a true neoplasm. In all cases of so-called hypertrophy there is an atrophy of the uninvolved portion of the gland. This may be ascribed to pressure, although it has not been possible to prove this hypothesis. The endocrine relationship on this already atrophied true prostatic tissue following castration would be a negligible factor in relieving obstruction. The authors' work leads them to believe that the monkey does not have submucosal glands in the prostatic urethra but, conversely, that the rat has all the anatomic origins necessary for prostatic hypertrophy.

## Kentucky Medical Journal, Bowling Green

**33:** 107-156 (March) 1935

Trend of Modern Medicine. C. G. McLean, Lexington.—p. 112.
Hydrotherapy in Treatment of Osteomyelitis. R. T. Hudson, Louisville.—p. 117.
Vitamin, Endocrine and Allergen Relativity. R. A. Bate, Louisville.—p. 120.
The Wearing of Glasses as It Relates to Medicine. A. O. Pfingst, Louisville.—p. 129.
Ruptured Ectopic Pregnancy. W. O. Johnson, Louisville.—p. 135.
Pulmonary Emphysema: Sequels of Pulmonary Tuberculosis. K. Dunham, Cincinnati.—p. 139.
Hemolytic Icterus, Familial Type. Margaret Limper, Louisville.—p. 143.
Treatment of Diarrhea in Infancy. J. W. Bruce, Louisville.—p. 145.
Some Further Studies and Observation of Hyperthermia (Fever Treatment) Cases. J. C. Rogers, Louisville.—p. 149.
The Doctor. L. Logan, Barbourville.—p. 151.

## Michigan State M. Society Journal, Grand Rapids

**34:** 197-262 (April) 1935

Heredity and Environment in Relation to the Handicapped: Lecture I. Origin and Nature of Human Handicaps. L. F. Barker, Baltimore.—p. 197.
The General Practitioner as His Own Neurologist. H. A. Freund, Detroit.—p. 208.
Neurotic Reactions in Marriage. H. A. Reye, Detroit.—p. 212.
Some of the Changes Found in Eyes, in Control and Treatment of Which the General Practitioner and the Eye Physician Should Cooperate. T. D. Allen, Chicago.—p. 219.
*Spondylitis in Undulant Fever: Report of Two Cases. C. H. Snyder, Ann Arbor.—p. 224.
The Future of Medicine. J. C. S. Battley, Port Huron.—p. 229.
Traumatic Neurosis: Biosociological Problem. I. M. Altshuler, Detroit.—p. 236.

**Spondylitis in Undulant Fever.**—Snyder points out that in spondylitis due to undulant fever the prognosis is favorable and treatment consists usually only in immobilization, while prolonged fixation or bone grafting will be necessary in tuberculosis. Two cases of spondylitis in undulant fever occurring in patients in Michigan are reported.

## Military Surgeon, Washington, D. C.

**76:** 173-228 (April) 1935

The Mission of the Sanitary Corps (Sanitation Section) in War Time. J. A. Tobey.—p. 173.
The Civilian Conservation Corps, as Viewed by a District Surgeon. H. C. Michie.—p. 181.
The Civilian Doctor's Part in National Military Emergency. G. A. McBride.—p. 191.
Powdered Milk for Field Service. W. Platt.—p. 200.
New Device for Certain Laboratory Analyses. F. J. Vokoun.—p. 209.

## Minnesota Medicine, St. Paul

**18:** 201-268 (April) 1935

Retinal Detachment. F. E. Burch, St. Paul.—p. 201.
Gastritis, a Phenomenon of Pyloric Obstruction and Its Relation to Duodenal Ulcer. W. Walters and G. T. Church, Rochester.—p. 206.
Pathologic Factors in Curability of Carcinoma of Colon. L. M. Larson, Minneapolis.—p. 212.
Preoperative, Operative and Postoperative Technic of Prostatic Resection with Direct Vision Cold Knife Instrument. G. J. Thomas, Minneapolis.—p. 218.
Transurethral Prostatic Resection: Review of Seven Hundred and Twenty-One Cases in Which Operation Was Performed During 1932 and 1933. G. J. Thompson and W. F. Braasch, Rochester.—p. 224.
Palliative Treatment of Tic Douloureux. E. J. Engberg, St. Paul.—p. 229.
Medical Aspects of Commoner Industrial Poisonings. R. N. Bieter, Minneapolis.—p. 234.
Treatment of the Commoner Industrial Poisonings: Lead, Arsenic and Carbon Monoxide. H. N. Wright, Minneapolis.—p. 236.

## Nebraska State Medical Journal, Lincoln

**20:** 81-120 (March) 1935

Complications and Disappointments in Radium Therapy for Cancer of Uterus. P. Findley, Omaha.—p. 83.
Primary Hypochromic Anemia. J. C. Sharpe, Omaha.—p. 89.
Conduct of Normal Labor. F. P. Murphy, Omaha.—p. 92.
Epithelial New Growths. J. A. Borghoff, Omaha.—p. 96.
Conservative Treatment of Chronic Discharging Ear. J. C. Davis, Omaha.—p. 100.
Oral Cancer. H. N. Boyne, Omaha.—p. 102.
Trichomonas Vaginalis. Olga Stastny, Omaha.—p. 105.
Pulmonary Tuberculosis: Collapse Therapy. J. D. Bisgard, Omaha.—p. 108.
Tuberculous Epididymitis. M. Emmert, Omaha.—p. 111.

**20:** 121-160 (April) 1935

The Causation of Cancer. H. E. Eggers, Omaha.—p. 121.
Important Lines of Attack on Cancer Problem. B. C. Russum, Omaha.—p. 123.
Early Diagnosis and Treatment of Cancer. J. Weinberg, Omaha.—p. 125.
Clinical Aspects of Radiation in Neoplastic Disease. H. B. Hunt, Omaha.—p. 127.
*High Voltage Treatment of Cancer. R. L. Smith, Lincoln.—p. 133.
Carcinoma of Stomach: Necessity of Early Diagnosis and Treatment. A. Sachs and R. L. Traynor, Omaha.—p. 137.
Treatment of Lymphoblastoma. E. W. Rowe, Lincoln.—p. 141.
Cancer, with Especial Reference to Palliative Treatment. S. A. Swenson, Oakland.—p. 143.
Roentgen-Ray Treatment of Malignancies of Face. A. P. Overgaard, Omaha.—p. 146.
Carcinoma of the Breast. H. H. Davis, Omaha.—p. 148.
Statistical Study of Carcinoma and Sarcoma. D. C. Hilton, Lincoln.—p. 153.

**High Voltage Treatment of Cancer.**—In treating cancer in any stage, Smith divides the skin surrounding the tumor in as many 15 by 20 cm. areas as possible and directs the beam of radiation directly toward the tumor. He administers 300 roentgens daily to a single area and treats all areas in rotation until each has received a total of 2,100 roentgens. In the event of the tumor being located close to the surface, the tumor receives additional treatment of one-half erythema dose of low voltage through the use of 185 kilovolts of mechanical rectified current and filters of 0.5 mm. of copper and 1 mm. of aluminum at a skin distance of 50 cm. The low voltage treatment is administered immediately following the completion of high voltage series. When dealing with recurrent nodules following mammectomy, which frequently occur in and under the skin on the chest wall, the author proceeds in a similar manner, employing high voltage radiation for its effect on the deep structures and modifying the voltage to produce a much longer wavelength for the skin effect. Usually 140 kilovolts of mechanical rectified current, 3 mm. of aluminum filter, 28 cm. focal skin distance, is applied for a sufficient time to produce a threshold erythema. The combination of extremely highly filtered x-rays of a very short wavelength and the low voltage or longer and less penetrating radiation seems to produce more rapid recession of cancer tissue. This effect is not obtained when either is employed singly. The marked relief of symptoms and rapid recession of the tumor mass often permit surgical removal, which otherwise would have been impossible. The microscopic examination of numerous sections of tumors treated with high voltage radiation prior to removal shows many striking changes of the cells.

## New England Journal of Medicine, Boston

**212:** 501-544 (March 21) 1935

Indications for and Results of Total Cystectomy for Cancer of Bladder. W. C. Quinby, Boston.—p. 501.
Ureterorectal Anastomosis. T. N. Hepburn, Hartford, Conn.—p. 503.
Significance of Postoperative Rises of Blood Nonprotein Nitrogen. H. A. Derow, Boston.—p. 509.
Contraception as Possible Means of Reducing Gynecologic Morbidity. E. Stone, Providence, R. I.—p. 511.

**212:** 545-596 (March 28) 1935

Acute Hepatitis in a Diabetic with Severe Acidosis and Suppression of Urine. H. F. Root, Boston.—p. 545.
Glomerulonephritis with Three Anemic Episodes: Case. T. S. Evans, New Haven, Conn.—p. 547.
Chronic Cystic Mastitis: Practical Management in Cancer Clinic. H. Rogers, Boston, and I. T. Nathanson, Wrentham, Mass.—p. 551.
*Exposition of Preparation and Administration of Amniotic Fluid Concentrate. H. L. Johnson, Boston.—p. 557.
Your Profession and Society. J. A. Hartwell, New York.—p. 559.
The Prolongation of Life. H. D. Chadwick, Boston.—p. 566.

**Preparation and Administration of Amniotic Fluid Concentrate.**—Johnson states that the action of amniotic fluid concentrate on the peritoneum is to stimulate the production of a defense exudate similar to that laid down in the presence of infection. It accomplishes an early peritoneal immunity, giving maximal protection with minimal physiologic disturbance. Its use is especially indicated in surgical procedures of the peritoneal cavity involving widespread trauma or contamination. Operative introduction may be practiced as a routine in all primarily clean cases of abdominal surgery. Preoperative instillation is usually reserved for cases reputed to have a high mortality from postoperative peritonitis. The dosage ranges from 50 to 300 cc. depending on the method of introduction, the nature and severity of the surgical procedure and the size of the abdomen. The dosage for preoperative instillation is from 50 to 100 cc. from eight to twelve hours before operation. An intraperitoneal trocar or spinal needle (18 to 20 gage) may be used to accomplish preoperative instillation.

## New York State Journal of Medicine, New York

**35:** 239-286 (March 15) 1935

Psychiatry and the General Practitioner: Syndromes Commonly Met with in Practice. M. W. Rayner, White Plains.—p. 239.
The Problem of Acute Appendicitis in New York City. S. Krech, New York.—p. 248.
Diagnosis and Treatment of Intestinal Amebiasis. T. T. Mackie, New York.—p. 261.
Tuberculosis Hospital and the Family Physician. G. W. Weber, Kingston.—p. 267.

**35:** 287-336 (April 1) 1935

Hearing Reclamation and Preservation in Moderately Deafened Child: Management and Treatment Based on Ten Years of Clinical and Laboratory Research. E. P. Fowler, New York.—p. 287.
*Clinical Aspects of Forced Perivascular Drainage of Central Nervous System. G. M. Retan, Syracuse.—p. 295.
Between Mental Health and Mental Disease. B. Liber, New York.—p. 305.
Importance of Medical Supervision During Early Infancy on Infant Death Rate. H. Bakwin and Ruth Morris Bakwin, New York.—p. 313.
Community Control of Professional Blood Donors. E. H. L. Corwin, New York.—p. 317.

**Forced Perivascular Drainage of Central Nervous System.**—Retan treated a case of syphilitic meningitis in 1930 in an infant, aged 6 months, which had a progressive hydrocephalus. Vigorous antisyphilitic treatment for three months failed to produce any clinical or serologic improvement. He then decided to alter the osmotic pressure of the blood stream by the intravenous injection of a hypotonic solution containing an arsenical; also to drain the spinal fluid, hoping that it might be possible to draw enough arsenic through the lesions of the central nervous system to produce a therapeutic effect. After four such treatments the patient had apparently recovered and has developed normally since. The author suggests forced perivascular drainage as a term that describes the essential factor involved in this treatment. A study of 115 forced perivascular drainage treatments shows the following results in regard to cellular behavior in the spinal fluid: 1. Patients without active infection of the central nervous system fail to show any cells in fractions of fluid examined during the intravenous injection of hypotonic solution. 2. Patients with syphilis of the central nervous system, of a duration of many years and who have had years of antisyphilitic treatment, also fail to show cell response. Similar results have been obtained in cases of chronic encephalitis of a duration of six and seven years. 3. In cases of septic meningitis there is a steady reduction in the number of cells found in fractions of the spinal fluid throughout the treatment. These cells continue to be practically 100 per cent polymorphonuclear leukocytes. 4. In cases of acute poliomyelitis, during continuous drainage and before the hypotonic solution is injected into the blood stream, there is a reduction in the number of cells found in fractions of the spinal fluid. However, the relation between the percentage of polymorphonuclear cells and lymphocytes in the spinal fluid is not greatly changed. If a hypotonic solution is then injected into the blood stream there is a prompt increase in the number of cells found in fractions of the fluid, with a shift to a preponderance of lymphocytes. 5. In cases of chorea, in which the cells in the spinal fluid are all lymphocytes, usually with a normal cell count, almost all later fractions contain lymphocytes, usually in increased numbers. However, certain fractions may contain no cells. These cases show in their later fractions a very small number of cells as compared to the later fractions in acute poliomyelitis. The author's technic is given.

## Northwest Medicine, Seattle

**34:** 111-148 (April) 1935

Rocky Mountain Spotted Fever: Epidemiology, with Particular Reference to Distribution and Prevalence in Western United States. R. R. Parker, Hamilton, Mont.—p. 111.
Surgical Shock. E. Andrews, Chicago.—p. 122.
The Airway in Asphyxia. A. B. Murphy, Everett, Wash.—p. 126.
Operability of Carcinoma of the Breast. V. C. Hunt, Los Angeles.—p. 129.
Large Quantities of Fluids Intravenously: Principles and Practice for Their Use. C. R. Jensen, Seattle.—p. 132.

## Ohio State Medical Journal, Columbus

**31:** 241-312 (April 1) 1935

Hyperthyreoidism. H. G. Sloan, Cleveland.—p. 261.
Ménière's Symptom Complex: Medical Treatment. A. C. Furstenberg, F. H. Lashmet and F. Lathrop, Ann Arbor, Mich.—p. 263.
Trichinosis. F. J. Doran, Cleveland.—p. 267.
Traumatic Neurosis. G. T. Harding, Columbus.—p. 268.
Occupational Disease Report for 1934 and Summary for Past Years. E. R. Hayhurst, Columbus.—p. 275.

## Public Health Reports, Washington, D. C.

**50:** 323-358 (March 8) 1935

Occurrence of Infestations with Endamoeba Histolytica Associated with Water Borne Epidemic Diseases. A. V. Hardy and Bertha Kaplan Spector.—p. 323.
Variations in Physique and Growth of Children in Different Geographic Regions of the United States: Physical Measurement Studies Number Two. C. E. Palmer and S. D. Collins.—p. 335.

**50:** 421-468 (March 29) 1935

*Urinary Excretion of Silica by Persons Exposed to Silica Dust. J. J. Bloomfield, R. R. Sayers and F. H. Goldman.—p. 421.
Mottled Enamel in Texas. H. T. Dean, R. M. Dixon and C. Cohen.—p. 424.

**50:** 469-502 (April 5) 1935

Public Health Nursing in Bi-County Health Department: Brunswick-Greensville Health Administration Studies Number Four. Pearl McIver.—p. 469.
Studies of Sewage Purification: I. Apparatus for Determination of Dissolved Oxygen in Sludge-Sewage Mixtures. E. J. Theriault and P. D. McNamee.—p. 480.

**Urinary Excretion of Silica.**—Bloomfield and his associates examined 123 anthracite coal workers, twenty of whom had been out of the industry for an average of seven years, for urinary silica by the method of King and Dolan. The amounts of silica found in the urine varied from 0.6 to 11.7 mg. and averaged 2.5 mg. per hundred cubic centimeters. Normal persons were found to be excreting only an average of 1 mg. per hundred cubic centimeters. A close correlation was found between the silica dust exposure of these men for a specified number of years and the amount of urinary silica. A study of former anthracite coal workers showed that, even after a lapse of several years away from any silica dust exposure, an increased amount of silica is being excreted by them. This furnishes additional evidence of the etiology of the disease.

## Surgery, Gynecology and Obstetrics, Chicago

60: 763-890 (April) 1935

Late Complications in Irradiation Treatment of Cancer of Cervix. O. U. Newell and H. S. Crossen, St. Louis.—p. 763.
*Cause of Death Due to Liver Autolysis. E. C. Mason and C. A. Nau, Oklahoma City.—p. 769.
Histology of Biliary Ducts and Its Correlation with Symptomatology of Common Duct Stone. I. G. Macdonald, Cornwall, N. Y.—p. 775.
Bleeding Tendency in Jaundice. A. C. Ivy, P. F. Shapiro and P. Melnick, Chicago.—p. 781.
*Effect of Viosterol in Jaundice. R. W. McNealy, P. F. Shapiro and P. Melnick, Chicago.—p. 785.
Mechanics of Physical Signs in Lower Trunk Injuries. L. Brahdy, New York.—p. 802.
Energy Background of Genesis of Gallstones and of Prevention of Immediate Postoperative Shock and of Later Digestive Disturbances. G. Crile, Cleveland.—p. 818.
Total Abdominal Hysterectomy: Anatomy and Technic. Lilian K. P. Farrar, New York.—p. 827.
Surgery of Gangrene of Extremities: Study of One Hundred and Seventy-One Cases from Records of New Orleans Charity Hospital. J. R. Veal and Elizabeth M. McFetridge, New Orleans.—p. 840.
*Positive Treatment for Fractures of Shaft of Femur: Preliminary Report Emphasizing Ambulatory Treatment. R. A. Griswold, Louisville, Ky. —p. 848.
Closure of Chronic Osteomyelitic Cavities by Plastic Methods. J. P. Lord, Omaha.—p. 853.
Operative Injuries of the Ureter. I. R. Sisk, Madison, Wis.—p. 857.
Prognosis of Thyroid Cancer. H. M. Clute and S. Warren, Boston. —p. 861.
*Aseptic Uretero-Enterostomy. E. J. Poth, San Francisco.—p. 875.

**Cause of Death Due to Liver Autolysis.**—Mason and Nau carried out experiments on dogs and rabbits to determine whether the type of diet could in any way modify their previous results in explaining the cause of death when liver tissue is found free within the abdomen. They believe that their investigations furnish a satisfactory explanation for the cause of death. Sectioned liver tissue undergoing aseptic autolysis within the abdomen is accompanied by definite damage to the host. This is evidenced by changes in liver and kidney of the host and also by toxic symptoms manifested. All their previous experimental data were obtained from dogs. Therefore, when the first three rabbits of the present series survived the operation the authors were of the opinion that the survival was due to the type of diet selected by the rabbit. This conclusion also agreed with the observation of Salzmann. Continuing their experiments they concluded that all the surviving animals received implanted liver tissue sectioned from the periphery of the liver. Such tissue proved to be free of the anaerobic bacillus. They further observed that the implanted liver tissue sectioned from the central portion caused death and also gave a positive culture for the organism. It has been observed by others that this organism may be injected in large amounts into the peritoneal cavity without causing the death of the animal. The authors injected the organism intravenously and found that it affected the animals little, if at all. However, if shortly after such an injection the animals were killed and incubated, the tissues were subsequently found completely riddled by the organism, the liver being destroyed. The sequence of events that leads to the death of the animals appears to be as follows: The bacteria remain in a latent state until stimulated to activity by the asphyxiation of the liver tissue. The activity of the bacteria then accelerates the production of toxic products and these, in turn, cause death by producing a chemical reaction. The picture is not that which is usually considered a generalized peritonitis, but the bacteria confine their activity locally to the selected substrate. The damage to the tissues of the host shown in the microscopic sections, with and without the presence of bacteria, suggests that the process which produces death is not necessarily a difference in kind but rather a difference in degree, the action of the bacteria only accelerating the liberation of toxins from the liver tissue. Trusler and Reeves have demonstrated the fact that the organism does not produce exotoxins, and it has been shown that the organism may be cultured within the abdomen, substrates other than adult liver tissue being used without causing death.

**Effect of Viosterol in Jaundice.**—McNealy and his associates studied the relationship between viosterol administration and blood calcium in 810 unselected cases in an effort to determine clinically whether viosterol would decrease the bleeding tendency of cases of jaundice or hepatic insufficiency. The patients were grouped broadly into 376 surgical and 434 medical patients. The average dose of viosterol was 30 drops (2 cc.) of 250 D three times a day. In cases presenting acholic stools, bile salts also were administered to ensure the absorption of vitamin D. In addition, calcium and dextrose were sometimes administered orally or intravenously. This administration was done in the control cases in about the same proportion as in the definitive group. There is no single method of predicting a bleeding tendency that is applicable to all types of hemorrhagic diatheses. In purpura the platelet count and in hemophilia the Howell method of coagulation time determination are the most reliable methods of predicting a bleeding tendency. The test that the authors found reliable in cases of hepatic deficiency was an application of the Duke method after a pressure of 40 mm. of mercury was applied to the arm. In this test the Ivy bleeding time does not normally exceed 240 seconds. In the hemorrhagic diathesis the Ivy bleeding time practically always exceeds 240 seconds provided there is active or latent tendency to hemorrhage. Viosterol 250 D in doses of 30 drops three times a day supported by bile salts only in the presence of acholic stools almost always succeeded in reducing the prolonged Ivy bleeding time in cases of jaundice or hepatic deficiency to within normal limits in from four to seven days, provided the hepatic deficiency was not too far advanced or fulminating in its progress. With the reduction in the Ivy bleeding time, the hemorrhagic tendency would subside and the clinical condition improve. The most plausible hypothesis in explanation is that in hepatic insufficiency there is difficulty in absorbing fat soluble vitamins, and the deficiency in the latter aggravates the bleeding tendency. When an excess of fat soluble vitamin is exhibited in the form of viosterol, this deficiency is corrected. In complete acholia, the absorption of viosterol is practically inhibited. The administration of bile salts then permits the absorption of viosterol.

**Treatment for Fractures of Shaft of Femur.**—Griswold applied the following method of treating fractures of the shaft of the femur, five of which were ambulatory: Under spinal or local anesthesia the patient is placed on the fracture table and extension by Collin's hitches is applied until the length of the limb is restored. After the skin is prepared, a steel pin, one-eighth inch in diameter and from 6 to 8 inches long, is inserted transversely through the distal fragment just above the adductor tubercle. A second pin, five thirty-seconds inch in diameter and from 8 to 10 inches long, is inserted in the anteroposterior direction at or slightly below the level of the lesser trochanter. Accurate placement is aided by the fluoroscope. These pins are inserted directly through the skin. The distal pin is slung from the suspension bar of the table by a suitable caliper and lifted to correct flexion of the distal fragment. Flexion of the proximal fragment is corrected by a clockwise motion of the upper pin, which is held manually in a caliper. From the anterior aspect the deformity is corrected by abduction or adduction of the distal fragment combined with medial or lateral traction on the proximal pin. Rotation is corrected by appropriate motion of one or both pins. The position is checked by fluoroscopy or roentgenograms in two planes and any necessary residual correction is carried out. A nonpadded walking spica is applied according to the method outlined by Boehler and Schnek. The anterior superior spines and sacrum are protected by thin padding, which is covered by a circular layer of flannelet extending from the xiphoid process to the symphysis. A previously prepared roll of padding is applied to the tuberosity of the ischium for counterpressure. The pad is about 8 inches long and has the thickness and firmness of a Thomas splint roll. The long ends of the bandage are pulled snugly upward over the flannelet so that the pad impinges firmly against the tuberosity. Circular plaster bandages are applied to the trunk and pelvis and molded about the crest and spines of the ilium. Anterior and posterior splints are applied to the skin from the Collin's hitch well up over the pelvic portion of the cast and covered with circular plaster bandages closely incorporating both pins. On the perineal side of the thigh, plaster is modeled over the ischial roll to form a shelflike structure, which holds the roll in place and transfers some of the pressure of weight bearing to the ischium. The junction of the thigh and pelvic portions of the cast is strengthened by additional splints and bandages. When this plaster

has set, the Collin's hitch is removed and the cast is extended. An anterior plaster splint is applied as far as the base of the toes and a posterior one to a point one-half inch beyond the tips of the toes. These are covered with circular plaster bandages, making firm union with the rest of the cast. A Boehler walking iron is incorporated when the plaster has hardened. Trimming of the cast is carried out to uncover the upper part of the abdomen and allow free motion of the uninjured thigh. Weight bearing is allowed as soon as the plaster is sufficiently hard and roentgenograms have checked the position in the cast. Weight bearing should be painless after the first few days. The cast remains in place throughout the period of healing and may take the place of a convalescent walking splint. The pins may be removed at the end of about eight weeks. In feeble elderly patients too weak to carry the cast, the pelvic portion of the cast may be omitted or removed, leaving the ischial pad and maintaining firm fixation of the proximal pin; but pivoting of the proximal fragment on the pin might occur with resulting outward bowing. The omission of the pelvic cast is advisable only if the patient cannot walk and when it is essential to allow him to sit up in bed or a wheel chair.

**Aseptic Uretero-Enterostomy.**—Poth describes an operative technic used in experiments on dogs for performing uretero-enterostomy that ensures complete surgical asepsis, healing in a clean anastomotic bed and assurance of an opening between the ureter and the intestine. The operation is divided into two stages. The first stage is concerned with embedding the intact and uninterrupted ureters in the wall of the intestine between the muscular layers and the submucosa. At the second stage the ureters are interrupted distally, openings are made between the ureters and the intestine, and the bladder is removed. Following the first stage, in which the two ureters are embedded simultaneously, the blood urea is usually increased for three or four days, corresponding to a temporary postoperative anuria. The animals drink and eat little during this time. They then begin to drink and urinate freely, and the blood urea returns to normal in the course of the next two days. Some of the animals eat, drink and urinate normally the day following operation, and the blood urea is not increased during this postoperative period. Intravenous urography reveals no dilatation of ureters or kidney pelves. At the second stage of the operation some three weeks later there is no evidence of hydro-ureters or hydronephrosis. The kidneys are macroscopically and microscopically normal. The establishment of the communication between the ureter and the intestine at the second operation is accomplished with a minimum of healing surfaces. The blood supply to the healing mucosal edges is unimpaired, and so fibrosis must be minimal. Urine flows freely into the proctoscope as soon as the opening is made between the ureter and the intestine. At no time has there been anuria during the second postoperative period. The urea content of the blood rises somewhat in the course of a few days and fluctuates from day to day, apparently depending on the amount of water and nitrogenous material reabsorbed from the intestine. Intravenous urography again reveals normal outlines of the kidney pelves and ureters.

## Virginia Medical Monthly, Richmond

62: 1-60 (April) 1935

Certain Symptoms Due to Diseases of Urinary Tract Which Are Often Diagnosed and Treated as of Other Origin. G. L. Hunner, Baltimore.—p. 1.
Hyperesthetic Rhinitis (Hay Fever): Treatment by Zinc Ionization. C. M. Miller, Richmond.—p. 11.
Wandering Spleen with Torsion of its Pedicle: Report of Case. J. C. Motley, Abingdon.—p. 14.
Rôle of Hormones in Cause and Treatment of Functional Uterine Bleeding. H. F. Kane, Washington, D. C.—p. 19.
Fractional Sterilization by Heat in Corneal Ulceration. N. H. Turner, Richmond.—p. 23.
Pathologic Lesions Correctly Diagnosed by Roentgenologic Methods and Later Missed at Surgical Exploration. C. Moore, Washington, D. C.—p. 28.
Some Problems of the Industrial Physician. H. T. Hawkins, Waynesboro.—p. 30.
Convalescent Serum in Treatment of Undulant Fever: Case Report. T. F. Kennan, Raphine.—p. 34.
Acute Perforation of Gastric Ulcer Followed by Rupture of Abdominal Wound and Complete Cure: Report of Case. H. Cantor, Petersburg.—p. 37.
Sarcoma of Uterus. R. H. Hoge, Richmond.—p. 40.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Children's Diseases, London

32: 1-82 (Jan.-March) 1935

Some Observations on Rheumatism in Children. T. W. Preston.—p. 1.
Analysis of Over Four Thousand Cases of Educational Deafness Studied During Past Twenty-Five Years. M. Yearsley.—p. 21.
Case of Double Riga's Disease. P. H. Newman.—p. 39.
Premature Grayness of Hair. V. Kolew.—p. 41.

## British Journal of Dermatology and Syphilis, London

47: 85-142 (March) 1935

Dermatomyositis: Summary of Literature and Report of Case with Commentary. E. S. Stuckey.—p. 85.
Some Observations on Eczematides. G. H. Percival.—p. 109.

## British Journal of Ophthalmology, London

19: 129-176 (March) 1935

The Visual Cells of Lampreys. G. L. Walls.—p. 129.
Some Notes on Treatment of Strabismus. S. R. Gifford.—p. 148.
Familial Macular Degeneration. R. E. Wright.—p. 160.
Rising Front Bifocals. F. A. Williamson-Noble.—p. 165.

19: 177-240 (April) 1935

Entoptic Phenomena Associated with Retina. C. R. Marshall.—p. 177.
*Orbital Teratoma. E. W. O'G. Kirwan.—p. 201.
Posterior Lenticonus: Report of Case. T. H. Luo.—p. 210.
Hyaline Bodies on Disks. F. C. Plummer.—p. 215.

**Orbital Teratoma.**—Kirwan presents a case of orbital teratoma in a girl baby which was brought to the hospital one week after birth. From the left orbital cavity a red mass about the size of an ordinary tomato protruded and in the middle of the mass the anterior half of the eye could be seen, the posterior half being buried in the growth. The cornea was irregularly opaque. The tension of the eyeball was normal. The size of the cornea appeared to be about the same as in the normal eye. The upper and lower eyelids were tremendously distended. The mass was growing principally on the inner side of the orbital cavity and was pressing on the lateral side of the nose, obliterating the left nasal cavity. The growth was hard and elastic. An exenteration of the orbit was carried out. The mass was incised and found to contain a cyst holding about half an ounce of serous-like fluid. The rest consisted of solid growth about the size of a large walnut. The baby had an uneventful recovery. The palpebral fissure and the eyelids are now (two years later) the same as in the right eye. There is only a small conjunctival sac. The vertical and the horizontal meridians of the bony orbit are somewhat larger than in the right eye. In other respects the child is normal. Serial sections show all the different types of tissues to be found in the body that originate in the three germinal layers: cartilage, nerve, lymphoid tissue, fat, involuntary and heart muscle, skin, hair follicles, vascular tissue with melanoblasts, small intestine, liver and parathyroid. The eyeball and the optic nerve are normal and are independent of the origin of the tumor.

## British Medical Journal, London

1: 571-630 (March 23) 1935

Study of Human Nutrition: The Outlook Today. F. G. Hopkins.—p. 571.
Prostatectomy as Performed by the Late Professor Andrew Fullerton. W. A. Page.—p. 578.
Some Present-Day Problems of Tuberculosis Research. E. M. Fraenkel and R. J. V. Pulvertaft.—p. 580.
Cat-Bite Fever: Case. G. E. Beaumont and A. M. Gill.—p. 582.
*Unusual Outbreak of Gastro-Enteritis. J. Fanning.—p. 583.
Diagnosis and Treatment of Malignant Diphtheria. B. A. Peters.—p. 585.

**Outbreak of Gastro-Enteritis.**—Fanning describes an outbreak of gastro-enteritis that differed from the ordinary type of outbreak of food poisoning in that it was spread over a period of a month and it was difficult to find any definite connecting link between the cases. The persistently negative bacteriologic observations in the pathologic specimens examined may be held almost certainly to exclude infection by the Salmonella or dysentery group of organisms. Attention is therefore directed to the part played by other organisms in gastro-enteritis. Although suspicion may fall on Staphylococcus

aureus as a possible cause of the outbreak there is not sufficient evidence to come to any definite conclusion. It would appear that Staphylococcus aureus is a potential cause of gastro-enteritis and that butter, the only food that came under suspicion, is sometimes contaminated by that organism to a considerable degree. Staphylococcus aureus was isolated from the spleen in one of the fatal cases, but this is not necessarily significant. The symptoms consisted of severe epigastric pain, vomiting, diarrhea and collapse, with a normal or subnormal temperature.

## East African Medical Journal, Nairobi

**11:** 375-408 (March) 1935

Medical Aspects of White Settlement in Kenya. M. Mackinnon.—p. 376.
Autopsy on a Case of Acute Bacterial Endocarditis. E. J. Blackaby.—p. 394.

## Edinburgh Medical Journal

**42:** 205-240 (April) 1935

Scoliotic Vertebral Osteosis. D. M. Greig.—p. 205.

## Guy's Hospital Reports, London

**85:** 1-128 (Jan.) 1935

Studies on Tumor Formation. G. W. Nicholson.—p. 8.
New Study of Heat Production in Man. T. W. Adams and E. P. Poulton.—p. 56.
Congenital Word-Blindness and Reading Disability. K. Duguid.—p. 76.
*Eosinophilia in Allergic Conditions. F. A. Knott and R. S. B. Pearson.—p. 94.
Observations on Gastritis. C. K. Simpson.—p. 102.
Case of Midline Cerebellar Tumor: Death by Spontaneous Rupture of Heart. C. G. Pantin.—p. 126.

**Eosinophilia in Allergic Conditions.**—Knott and Pearson examined the sputum of 222 asthmatic patients for eosinophil concentration. They observed that there is a slightly increased tendency for respiratory infection to occur in asthmatic patients as age increases. Those developing asthma late in life are more likely to have an associated infection, but the length of time during which they have suffered from asthma does not appear to be of importance in this respect. Cases in which there is a heavy infection give less evidence of protein sensitivity as demonstrated by skin reactions than the purely allergic cases and also show a smaller hereditary tendency, but the difference is not sufficiently marked to justify complete subdivision on etiologic grounds of this infected group from the purely allergic group. The difference clearly lies in the degree to which either the allergic or the infective factor predominates. The results of sputum examination, skin testing and analysis of the clinical history of these patients afford support for the suggestion that hypersensitivity is a factor in all cases of asthma. Many also show bronchiolar infection, sometimes so marked as to obscure the presence of eosinophils. Infection may be a dual factor in allergic patients. It may by actual damage to the bronchial mucous membrane and possibly by lowering the general health of the individual render him more liable to development of hypersensitivity, and in cases of subclinical allergy, when the tendency is present but symptoms have not occurred, the mucous membranes may be turgid and "boggy" and therefore more liable to be infected than healthy mucous membrane; when infection does occur, asthma is precipitated. An example of this mechanism is probably seen in the case of the infant with allergic eczema that clears up, leaving the baby well until perhaps 3 years of age, when an infection of the turgid mucous membrane occurs with subsequent development of asthma. Finally, notably various gram-negative bacilli so frequently found in sputum from asthmatic patients can, by their proteolytic action, actually produce histamine-like substances and these by direct effect on the bronchioles may act as a subsidiary cause of the asthmatic attacks. The evidence that the authors collected suggests that infection acts only as a subsidiary cause of asthma, which always develops on 'a basically allergic (hypersensitive) background.

## Indian Medical Gazette, Calcutta

**70:** 121-180 (March) 1935

Drug Addiction in India and Its Treatment. R. N. Chopra.—p. 121.
Conservative Surgery in Malignant Disease. T. H. Somervell.—p. 131.
Duration and Degree of Immunity Against Smallpox Conferred by Infantile Vaccination. J. L. Pinto.—p. 135.
Some Observations on Lactose-Fermenting Organisms Encountered in Bacteriologic Analysis of Water in the Tropics. G. Mackey.—p. 140.
Fumigation and Trapping of Mosquitoes. J. F. James.—p. 143.

## Journal of Laryngology and Otology, London

**50:** 153-232 (March) 1935

Malignant Tumors of Nasal Mucosa. L. W. Price.—p. 153.
Maxillary Sinusitis: Statistical Investigation. I. B. Thorburn and L. L. Ratazzi.—p. 185.

**50:** 233-316 (April) 1935

Malignant Disease of Larynx and Pharynx: Third Communication. R. Stewart-Harrison and R. Sarasin.—p. 233.
Influenzal Labyrinthitis Without Suppurative Otitis Media. A. B. Smith.—p. 263.

## Journal of Pathology and Bacteriology, Edinburgh

**40:** 201-424 (March) 1935

Staphylococcus Toxins and Antitoxins. A. T. Glenny and Muriel F. Stevens.—p. 201.
*Healing of Artificial Defects of Duodenal Mucosa. H. W. Florey and H. E. Harding.—p. 211.
Quantitative Estimation of Fragility of Red Corpuscles. L. E. H. Whitby and M. Hynes.—p. 219.
Growth and Development of Psittacosis Virus in Tissue Cultures. J. O. W. Bland and R. G. Canti.—p. 231.
Effect of Antistreptolysin on Infection of Mice by Hemolytic Streptococci. E. W. Todd.—p. 243.
*The Pituitary Gland in Addison's Disease. A. C. Crooke and Dorothy S. Russell.—p. 255.
Action of Retrorsine on Rat's Liver. J. Davidson.—p. 285.
Experiments with Virus of Infectious Ectromelia: Action of Immune Serum in Vivo and on Growth of Virus in Culture. A. W. Downie and C. A. McGaughey.—p. 297.
*Encephalomyelitis Produced by Neurotropic Yellow Fever Virus. G. M. Findlay and Ruby O. Stern.—p. 311.
Eosinophils and Homologous Proteins. I. W. Hall.—p. 319.
*Peculiar Vascular Transportation and Generalization of Carcinoma Without Local Metastasis: Contribution to Knowledge of Metastatic Growth. H. Oertel.—p. 323.
Hemoglobinchelia in Toxic Conditions. R. Muir and J. F. Heggie.—p. 335.
Simple and Efficient Egg-Albumin Medium for Cultivation of Gonococcus. I. N. O. Price.—p. 345.
Large Concentrically Laminated Fibrinous Balls, Unattached, in Urinary Bladder. F. P. Weber.—p. 351.
Differentiation of Streptococcus Pyogenes from Man and Animals by Sorbitol-Trehalose Test. F. C. Minett.—p. 357.
Occurrence of Auer's Bodies in Monocytic Leukemia: Note. J. C. Hawksley.—p. 365.
Streptococcus Toxin-Antitoxin Flocculation. R. A. Q. O'Meara.—p. 371.
Comparison of Polynuclear Count in Healthy and Diseased Subjects in Mendon (China) and in Great Britain. H. C. Pai.—p. 381.
Investigation of Causal Agent of Bovine Pleuropneumonia. F. F. Tang, H. Wei, D. L. McWhirter and J. Edgar.—p. 391.
Origin of Tar Tumors in Mice, Whether from Single Cells or Many Cells. J. C. Mottram.—p. 407.

**Healing of Artificial Defects of Duodenal Mucosa.**—Florey and Harding demonstrate that cells typical of Brunner's glands regenerate conjointly with the cells forming villi, but owing to the fact that the muscularis mucosae does not reform they do not produce a layer of the same structure as Brunner's glands. Instead they are present where Lieberkühn's crypts would normally be. The regenerated Brunner's gland cells are apparently identical with those of true Brunner's glands, so that it is probable that they secrete their contained mucus, which thus forms a film on the villi. It would appear probable that the new Brunner's gland cells spring from the old ones bordering the denuded area. If Brunner's glands when injured can produce epithelium identical with that which occurs on the surface of the stomach as well as epithelium indistinguishable from pyloric glands, it strongly supports the view that in the cat at least Brunner's glands can be regarded as an extension of the pyloric glands into the duodenum. True goblet cells have been observed to occur interspersed among the Brunner gland type of mucous cell. The experiments described by the author have been done on healthy cats and in all cases the ulcer showed evidences of active or complete healing. It is possible to consider that in the healing of "naturally" produced human ulcers a similar regeneration does not occur. It is therefore of interest to find from human pathology evidence of mucosal scars incorporating regenerated "Brunner's glands" at the bases of the newly formed crypts.

**The Pituitary Gland in Addison's Disease.**—Crooke and Russell describe the chromophobe, acidophil and basophil transitional, and ripe acidophil and basophil cells in the normal pituitary when stained by a modification of Mallory's acid-fuchsin aniline-blue method. They examined the cellular composition of the gland with the same technic in twelve cases of Addison's disease and made a comparison with the normal. The Addison's disease was due either to tuberculosis or to

atrophy of the adrenals. This "destructive atrophy" has been contrasted with "simple atrophy" secondary to destruction of the anterior lobe of the pituitary. In five of the twelve cases the whole pituitary gland was cut in serial sections and differential counts of the cells were made according to Rasmussen's method. The counts confirmed the impression gained from inspection. The chromophobe cells are increased in number, and a variable proportion of exceptionally large examples is present. The acidophil cells are reduced, but seldom conspicuously. Constant features are the extreme reduction of the basophil cells and the presence of a series of abnormal basophil transitional cells. Evolution of the thymus and hyperactivity of the thyroid have been found in most cases but not in all. The reduction in the number of basophil cells in the anterior lobe of the pituitary is considered to be a constant change and the most significant change in the other ductless glands following destruction of the adrenal cortex in Addison's disease. The authors suggest that this reduction is the cause of the low blood pressure and possibly of the hypoglycemia in the disease.

**Encephalomyelitis Produced by Yellow Fever Virus.**—Findlay and Stern state that the neurotropic yellow fever virus produced in susceptible animals (1) an inflammatory reaction in the central nervous system, (2) degenerative changes in the nerve cells and (3) acidophilic intranuclear inclusions. The inflammatory reaction was characterized by infiltration with mononuclear cells and proliferation of the microglia. Degenerative changes in the ganglionic cells were present in all stages, from slight swelling of the body of the cell to neuronophagia with complete disintegration of the cell. Specific acidophilic intranuclear inclusions were seen only in ganglionic cells that had not undergone extensive degeneration and never in cells exhibiting neuronophagia. The inclusions did not stain with the Feulgen technic. Demyelination was not observed.

**Vascular Transportation of Carcinoma Without Local Metastasis.**—Oertel presents an instance of a quantitatively massive vascular transportation and generalization in a cancer of the stomach, which throughout maintained a purely intravascular restriction without transgression beyond it to the actual formation of secondary organic tumors. At necropsy the case appeared to be free from such metastasis, and only subsequent microscopic examination revealed its concealed generalization. From his observations the author believes that the extensive generalization is in all probability not so much an evidence of a massive, sudden invasion as a peculiar restricted manner of cancerous progress which confines itself to the blood and lymph channels. The evidence of the case points to the fact that cancer cells are not necessarily destroyed in the circulating lymph or blood of their host but, on the contrary, may thrive in it. It is only the markedly retarded or arrested blood and lymph streams which affect their nutrition and growth adversely, for under those conditions nutriment needed in abundance by these rapidly multiplying cells falls below their requirement or is completely shut off. The author points out that "aggressive" and "malignant" properties of tumor cells may be simulated and possibly explained by purely nutritive modifications, which their presence imposes on a stationary differentiated tissue. He did not observe evidence of a specific antitumor-cell body activity (Borst, Lumsden and others).

## Lancet, London

**1: 595-658 (March 16) 1935**

Respiratory Failure Including So-Called Asphyxia Neonatorum: II. Diagnosis. A. Moncrieff.—p. 595.
The Schick Test and Active Immunization in Relation to Epidemic Diphtheria. H. J. Parish and Joyce Wright.—p. 600.
*Treatment of Vulvovaginitis with Estrin. D. Nabarro and A. G. Signy.—p. 604.
Results of Radiotherapy in Cervix Cancer. Helen Chambers.—p. 606.
Agranulocytosis Treated with Pentnucleotide. G. S. Smith.—p. 607.
Agranulocytic Angina: Case. F. T. Ranson.—p. 609.
Plaster of Paris in Treatment of Colles's Fracture: Simple Technic Used in Fifty Consecutive Cases. H. Blauvelt and F. W. Willway.—p. 609.
Gangrenous Appendix Removed from Lumbar Hernia. A. R. C. Higham.—p. 612.

**Treatment of Vulvovaginitis with Estrogenic Substance.**—Nabarro and Signy used estrogenic substance in the treatment of twenty cases of vulvovaginitis in children. It was necessary to douche these children once a day, and 4 Gm. of iodine to one pint of water was the usual solution used. The first ten patients were given intramuscular injections of estrogenic substance. The dosage varied from 100 to 1,000 units daily and as a massive intramuscular dose from 20,000 to 50,000 units. The second series of ten patients received the estrogenic substance orally. In these the results were more uniform. The first two received 1,000 units daily for an average period of ninety-three days. The length of time between the start of the treatment and the last positive swab obtained was seventy-seven days in each case and both cases relapsed. The next five patients received 2,000 units daily; the average length of treatment was fifty days, the time elapsing before the last positive swab was obtained was twenty-seven days, and four of the five children relapsed. These seven cases were eventually cured, as their relapses responded readily to further estrogenic treatment. In the other three children the dose was increased to 4,000 units daily by mouth. In these three children the average length of treatment was twenty-eight days, their last positive swabs were obtained only sixteen days after the start of the treatment and none relapsed. In conclusion the authors advocate using from 1,000 to 2,000 units of estrogenic substance daily by injection or 4,000 units daily by mouth. The latter, besides being a more congenial method to all concerned, can be given to outpatients and the results with the oral method seem more satisfactory, as none of the cases on this dosage have relapsed.

## Practitioner, London

**134: 385-576 (April) 1935**

Tiredness as Symptom in Childhood. G. F. Still.—p. 385.
Constitution and Diathesis in Childhood. C. P. Lapage.—p. 393.
Diseases of the New-Born. N. B. Capon.—p. 403.
Artificial Feeding of Infants. W. Sheldon.—p. 415.
The Diet of the Preschool Child. E. Pritchard.—p. 429.
Dehydration and Acidosis in Gastro-Enteritis. S. Graham.—p. 441.
Diagnosis and Treatment of Acute Rheumatism. F. J. Poynton.—p. 451.
Diagnosis of Heart Disease in Children. R. Miller.—p. 462.
Chronic (Nontuberculous) Lung Disease in Childhood. A. G. Maitland-Jones.—p. 470.
*Pituitary Disorders in Childhood. H. Gardiner-Hill.—p. 480.
Skin Diseases in Children. R. T. Brain.—p. 492.
Intestinal Parasites. F. M. B. Allen.—p. 502.
Minimal Infections. N. Hallows.—p. 513.
Appendicitis in Children. A. Simpson-Smith.—p. 518.
Talipes Equinovarus. D. Browne.—p. 525.
Some Diseases of Eye Common in Children. G. G. Penman.—p. 538.
Laboratory Aids to Diagnosis. Norah Schuster.—p. 549.
Favorite Prescriptions: IV. Pharmacopeia of Hospital for Sick Children, Great Ormond Street. W. J. Pearson.—p. 560.

**Pituitary Disorders in Childhood.**—Gardiner-Hill points out that the clinical picture of pituitary disorders in childhood varies widely. The hypopituitary conditions are in most instances well understood and their underlying pathology has been worked out. Their symptoms vary to some extent according to whether or not a tumor is present. The most characteristic feature of preadolescent hypopituitarism is a defect of growth. Sex infantilism also occurs but is difficult to assess in young children and is, in fact, generally not recognized until the changes of puberty fail to appear. Far less is known of preadolescent hyperpituitarism. Moreover, adenomas of the anterior lobe, the characteristic effects of which have been so carefully studied in adults, are seldom found before the second or third decades, so that this line of approach to hyperpituitary pathology is not available in children. A diagnosis of pituitary disorder in children appears to be made all too frequently and on insufficient grounds. The terms hypopituitarism and Fröhlich's syndrome, for instance, are often used in reference to children who are grossly overweight, in the absence of growth and sex defects. Fröhlich's syndrome in its true form is comparatively rare and the majority of fat children seen in medical practice have no defects of growth or sex development at all. The reverse is more often the case. Acceleration of growth during childhood and above the average stature are often found and, judging by the family histories, both the growth and obese tendencies are inherited characteristics. Their growth characteristics suggest glandular overactivity rather than deficiency, and their metabolic tendencies an exaggerated storage mechanism rather than any fundamental inability to utilize food. The

clinical syndrome of accelerated growth and obesity may possibly be due to hyperpituitarism. If so, it would seem to be a pituitary disorder in an inherited form. Genetic and chromosomal factors play an important part in the endocrine disposition. However, there is no certain guide to a diagnosis of endocrine diathesis and it would seem wiser to regard this particular syndrome as a constitutional peculiarity rather than an indication of definite pituitary disease.

## Quart. Bull., Health Org., League of Nations, Geneva

3: 531-732 (Dec.) 1934

Perilous Threshold of Life: Being a Description of the Demographic Setting of Infant Mortality. K. Stouman.—p. 531.
Fifth Analytic Review of Reports from Pasteur Institutes on Results of Antirabies Treatment. A. G. McKendrick.—p. 613.
Brief Guide to Varieties of "Anopheles Maculipennis"; Report by the Malaria Commission of the League of Nations.—p. 654.
Milk Hygiene in Department of Meurthe-et-Moselle. J. Parisot, P. Melnotte and L. Fernier.—p. 662.

## Japanese Journal of Experimental Medicine, Tokyo

13: 1-124 (Feb. 20) 1935

Studies on Virus of Lymphogranuloma Inguinale Nicolas, Favre and Durand: First Report. Y. Miyagawa, T. Mitamura, H. Yaoi, N. Ishii, H. Nakajima, J. Okanishi, S. Watanabe and K. Sato.—p. 1.
*Cultivation of Vaccinia and Varicella Viruses in Chorio-Allantoic Membrane of Chick Embryo, with Especial References to Preparation of Bacteria-Free Vaccine and Prophylactic Inoculation Against Varicella. T. Taniguchi, Y. Kogita, M. Hosokawa and S. Kuga.—p. 19.
Studies on Mitochondria and Metachondria of Epithelial Cells of Uterus and Vagina. G. Honda.—p. 31.
Relation Between Endocrine Glands and Estrus Cycle: Second Report. Influence on Estrus Cycle and on Female Generative Organs of Constituents of Pituitary Body, Thymus Gland, Thyroid Gland, Suprarenal Gland, Pineal Body, Ovary, Testicle, Liver, Spleen, Kidney, Lung and Muscle and of Physiologic Sodium Chloride Solution. S. Tsuchimoto.—p. 59.
Experimental Studies on Syphilis of the Central Nervous System: VII. Persistence of Spirochetes of Syphilis Suboccipitally Introduced in the Brain. T. Tani and H. Hutaki.—p. 63.
Id.: VIII and IX. T. Tani, K. Saitô, K. Ôgiuti, H. Hutaki and I. Ôya.—p. 69.
Id.: X. Syphilis of Mice. T. Tani and K. Ôgiuti.—p. 75.
Change of Pathogenicity of Spirochaeta Icterohaemorrhagica. K. Kaneko.—p. 83.
Changes of Characteristics of Spirochaeta Autumnalis in Animal Passage. K. Kaneko.—p. 93.
Do Changes in Virulence of Spirochaeta Hebdomadis Take Place Through Animal Passage? K. Kaneko.—p. 103.
Study on Virus of Summer Encephalitis of Japan. T. Taniguchi, S. Kuga, M. Hosokawa and Z. Masuda, in cooperation with T. Wada, T. Horimi and S. Hashida.—p. 109.

**Cultivation of Vaccinia.**—Taniguchi and his associates affirm the superiority of the egg method of Woodruff and his co-workers for preparing the bacteria-free variola vaccine. The authors have been able to prepare the bacteria-free vaccine that can affect the rabbit's skin in 1 in $10^{10}$ dilution by the method of Goodpasture, Woodruff and Buddingh for the cultivation of vaccinia in the chick membrane. They have also been able to produce ovovaricella vaccine from their strain of varicella virus, which has a noticeable power to give rise to lesions. Thus, they are inclined to believe that a preventive method of chickenpox by inoculation can be devised. By the sequence of the application of the ovovaccine, diluted ten to twenty or again as much, to more than 100 vaccinated and unvaccinated persons, all the inoculations took with the normal process as with the vaccine lymph, but theirs, diluted one in ten, was observed to be more virulent. The authors also tested the ovovaccine of their varicella virus on human bodies and were convinced that vaccination with it is feasible in the human being. Of fifteen unvaccinated persons who had never been afflicted with the disease, two were unsusceptible. Four children who had the disease were unsusceptible. The inoculation of ten vaccinated children with varicella vaccine did not show an allergic reaction as in the case of variola vaccine. The lesion, however, is abortive and is not as typical as in unvaccinated children. The appearance of the local lesion of the varicella vaccine on the human body is practically the same as that of the vaccinia. With an incubation period of from forty-eight to seventy-two hours, papules were observed, which gradually advanced to vesicles and then to pustules with a halo around them. After about two weeks, the scabs fell off. The prophylactic inoculation against varicella with the testicular vaccine is also applicable besides the ovovaricella vaccine.

## Presse Médicale, Paris

43: 425-448 (March 16) 1935

*Clinical Researches on Biliary Secretion. E. Chabrol and M. Cachin.—p. 425.
Debate on Diaphyseal Fractures. J. Gosset.—p. 429.

**Research on Biliary Secretion.**—Chabrol and Cachin studied the biliary secretion in 300 patients by means of duodenal tubage. Most of these showed a close parallelism between bile pigments, salts and cholesterol. Less frequently they observed a dissociation with relative increase of pigments and lowering of bile salts and cholesterol. More rarely a dissociation with increase in the bile salts was noted. The authors therefore conclude that duodenal tubage cannot be relied on to establish the diagnosis of lithiasis and that cholesterol-pigmentary dissociation is not characteristic of this condition. Duodenal tubage shows, however, that all icterus tends toward dissociation with increase of the bilirubin at the expense of cholalic acid and that the same dissociation exists in the cirrhoses without icterus. Tubage has similarly shown that the elimination of cholalic acid and the acid amines is disturbed in nephritis. In three splenectomized patients there was a remarkable excretion of bile salts contrasting with relatively small amounts of bile pigments.

43: 449-464 (March 20) 1935

Demonstration of Marked Epinephrinic Excess of Adrenals in Permanent Hypertension: Case. R. Leriche, H. Hermann and P. Etienne-Martin.—p. 449.
*Chronic Brucellosis in Man. J. Jullien.—p. 451.
Physiologic and Clinical Rôle of Bromine Exchange. L.-A. Jacobson.—p. 452.

**Chronic Brucellosis.**—Jullien describes two cases of chronic Brucella infection. In one case a cardiorenal condition and in the other a localized chronic rheumatism appeared undoubtedly to be of this origin. The author agrees that there is no doubt as to the existence of chronic undulant fever. He feels, however, that Brucella frequently prepares the field for associated infections, such as tuberculosis, syphilis, malaria and ordinary infective organisms. The latter should therefore be searched for. The best treatment is preventive. Symptomatic treatment must be applied and occasionally nonspecific vaccines appear to be of some value.

## Policlinico, Rome

43: 701-748 (April 15) 1935. Practical Section

*Histamine Test as Diagnostic Method in Pulmonary Tuberculosis with Few Auscultatory Signs. G. Luzzatto-Fegiz.—p. 701.
Intestinal Occlusion Due to Meckel's Diverticulum. E. Giupponi.—p. 707.
Intestinal Occlusion Due to Meckel's Diverticulum. L. Tomasi.—p. 712.

**Histamine Test in Pulmonary Tuberculosis.**—Luzzatto-Fegiz injects 1 cc. of a 1:1,000 solution of histamine subcutaneously in tuberculous patients. Following injection the skin is massaged vigorously and the patient remains in the recumbent position for several minutes until the signs of the histamine reaction appear. Auscultation is performed with quiet breathing and with forced breathing. The site of anticipated changes in the respiratory sounds and the appearance of moist râles are observed. Particular attention is paid to the anterior region of the thorax, in which many râles may be heard after injection, revealing foci previously silent. It is important that the patients do not cough much during the test, because coughing tends to decrease the râles rather than to increase them. The patient is examined three or four times in from two to three minutes and then rests for an hour until the signs of peripheral vasodilatation completely disappear. A raised pale wheal surrounded by an area of erythema appears locally at the point of injection after one minute. Immediately afterward peripheral vasodilatation is manifested in the face, the conjunctiva, the neck and the upper part of the thorax, reaching its maximum in five minutes. The patient frequently has a feeling of heat in the face, mild headache, palpitation of the heart and, less frequently, a feeling of constriction of the thorax and a dry cough. The changes in respiration several minutes after injection are (1) increased harshness of the respiratory sounds and (2) disappearance of cogwheel respiration. Râles appearing after injection of histamine in areas where there was previously no moisture are subcrepitant or inspiratory râles of medium size. In cases in

which there is ulceration the râles acquire a clear resonant sound. Frequently dry râles of bronchial quality occur, such as sibilant râles and rhonchi. All auscultatory signs disappear after from fifteen to twenty minutes. Of fifty cases presenting various pulmonary tuberculous lesions, eight showed localized cogwheel breathing following injection, thirteen showed râles, thirteen showed an increase of preexisting signs of moisture and modification of the quality of the râles, six showed râles and cogwheel breathing and ten showed no modifications at all. There were no contraindications, with the exception of patients presenting bronchial stenosis. The test was well tolerated in all instances.

## Riforma Medica, Naples

**51**: 317-356 (March 2) 1935

Lesions and Dysfunctions of Kidneys in Diabetic Patients. M. Roch.—p. 319.
*Depigmenting Action of Microsporon Furfur. F. Franchi.—p. 321.
Sepsis Due to Pseudomonas Pyocyanea with Benign Course: Case. R. Dusso.—p. 326.

**Depigmenting Action of Microsporon Furfur.**—Franchi exposed several patients presenting tinea versicolor to ultraviolet irradiation. After irradiation the author treated the dermatosis with lemon and sodium thiosulphate. This has the double purpose of completely eliminating the mechanical protective factor represented by the parasite mixed with the desquamated skin and the other eventual pathologic changes caused by the disease. No appreciable inflammatory reaction was produced, and total disappearance of the tinea lesions and of the parasites, checked by repeated microscopic examinations, occurred. The author exposed skin areas previously invaded by the parasite but normal in appearance, and healthy segments of skin, to slight irradiation because an intense erythema would have covered up everything. Twenty-four hours after irradiation, anemic spots with clear margins, representing the negative image of the dermatosis, are observed in the erythema. By their form and site they correspond to the preexisting small spots of tinea. In erythema a pigmentation takes place in which the already anemic small spots are recognized by a moderate achromia. These results demonstrate that Microsporon furfur in the skin is the cause of a depigmentation so mild as to escape observation and to require a contrast pigmentation of the surrounding skin to become visible. The removal of pigment in tinea versicolor results from (1) a mechanical protective action of the mycelia of the fungus and (2) the depigmenting action of the parasite itself. The author considers the marked depigmentation in tinea versicolor an exaggeration of a symptom normally observed in the ordinary forms of this disease.

## Prensa Médica Argentina, Buenos Aires

**22**: 509-558 (March 13) 1935. Partial Index

*Intraspinal Bismuth Therapy. C. Bonorino Udaondo, J. Pereyra Kafer and H. Zunino.—p. 509.
Mediastino-Diaphragmatic Triangular Images Due to Retraction of Inferior Pulmonary Lobe. R. F. Vaccarezza, G. Pollitzer and R. Ferretti.—p. 538.
Normal Image of Azygos Vein. F. C. Tucci and J. E. Mosquera.—p. 549.

**Intraspinal Bismuth Therapy.**—Bonorino Udaondo and his collaborators state that the treatment of dementia paralytica, taboparesis and tabes by intraspinal injections of a bismuth compound is practicable. It is possible, during the course of the treatment, to reach high doses (0.12 Gm. per injection) of a preparation of carbonate of metallic bismuth, but it is advisable to start the treatment with small doses (0.015 and 0.02 Gm. per injection) of the bismuth preparation and then to increase the doses until 0.12 Gm. per injection is reached. It is advisable to resort more frequently to the intraspinal bismuth treatment of the forms of neurosyphilis mentioned in order to establish a definite basis for indications, dosification and probable repetition of the treatment. The humoral changes observed in the patients, both during the administration of the treatment, which consisted of seven or eight injections given at intervals of one or two weeks, and shortly after its discontinuation, were not related to the clinical improvement of the patients and do not authorize the authors, as yet, to draw definite or general conclusions as to their significance.

## Archiv für Dermatologie und Syphilis, Berlin

**171**: 223-334 (March 16) 1935. Partial Index

*Dermatomyositis and Poikiloderma Atrophicans Vasculare (Jacobi) with Changes in Muscles. J. J. Zoon.—p. 223.
Blue Dermographism. P. W. Koschewnikow.—p. 238.
*Dermatomyositis. R. Bezecny.—p. 242.
Studies on Hypersensitivity to Oil of Turpentine by Means of Patch Test. N. Danholt and W. Burckhardt.—p. 252.
Langerhans Cells in Benign and Malignant Neoplasms. B. M. Klein and R. Missriegler.—p. 280.

**Dermatomyositis and Poikiloderma with Changes in Muscles.**—Zoon points out that it is still a matter of dispute whether poikiloderma atrophicans vasculare (Jacobi) is a distinct disease entity or whether it is identical with dermatomyositis. He made comparative studies in two cases of typical dermatomyositis and one case of poikiloderma (Jacobi). A comparison of the histologic aspects of the skin disclosed that the following changes are present in both disorders: (1) a more or less severe atrophy of the epidermis, without great changes of the epidermal adnexa; (2) atrophy of the stratum papillare; (3) inflammatory manifestations, primarily of lymphocytic character; (4) changes in the elastic tissue, especially in the subepidermal and the perivascular region; (5) noticeable changes in the walls of capillaries and smallest arteries, and (6) pigment in the cutis. Essential differences could not be observed. The fact that in dermatomyositis the muscles are so noticeably involved constitutes, in the author's opinion, the only reason for the differentiation of the two disorders. However, Jacobi's original description of poikiloderma atrophicans vasculare mentions also great muscular weakness. Moreover, Oppenheim, in describing poikiloderma atrophicans vasculare, differentiates cases with and without muscular changes and Petges suggested the term poikilodermatomyositis. The author examined an excision from the quadriceps femoris muscle of the patient with typical poikiloderma and found the identical changes, although in a somewhat milder degree, that are observable in dermatomyositis. He concludes from this that in this case of poikiloderma the muscles were involved, although the clinical aspects did not indicate it. He advises the examination of the muscles in other cases of poikiloderma and think that thus it might be possible to establish the identity of the two disorders.

**Dermatomyositis.**—Bezecny describes two cases of dermatomyositis. In one of the patients the disorder disappeared shortly after the extirpation of an ovarian carcinoma, and the author assumes a relationship between the intervention and the cure of the dermatomyositis. The second patient died, but in this one both breasts had carcinoma. On the basis of these observations the author considers it possible that in these two cases the symptoms of dermatomyositis may have been caused by toxins of the malignant tumors, perhaps by way of the sympathetic nervous system. He does not exclude the possibility that the cure in the first case may have been effected by the change in the internal secretion, which was produced by extirpation of the ovarian tumor. He believes that dermatomyositis is a syndrome that may be caused by various disorders.

## Deutsche medizinische Wochenschrift, Leipzig

**61**: 533-572 (April 5) 1935. Partial Index

Natural Diet and Protein Metabolism. A. Bickel.—p. 533.
*Treatment of Complicated Cases of So-Called Cardiospasm. H. Starck.—p. 537.
*Lobar Pneumonia as Epidemic Disease. M. Gundel and E. Wallbruch.—p. 539.

**Treatment of Cardiospasm.**—Starck discusses the nonsurgical treatment (cardiotonic dilation) of cardiospasm. In the complicated cases the course of the esophagus is usually abnormal, for, as the disorder continues, the esophagus loses its normal form and becomes wider and longer. Whereas the portion between the cricoid cartilage and the hiatus in the diaphragm ordinarily measures from 28 to 30 cm., it may reach a length of 40 cm. in cardiospasm. The result is that the esophagus is no longer straight but takes a convex or a serpentine course. Occasionally the esophagus descends diverticula-like over the dome of the diaphragm. The older dilation instruments with their rigid guides are unsuitable for such complicated cases. In order to lead the instrument to the diaphrag-

matic hiatus, the author used mercury tubes (from 10 to 25 cm. in length) as guides: as a result of their weight they follow the shortest route downward, and because of their flexibility they follow the course of the esophagus. In some instances, somewhat more rigid guides have to be used, and, in cases with severe diverticulation, pieces of elastic catheters with diverticular guides are attached to the instrument, or hard rubber guides, bent in the manner of a diverticular catheter, are used. With the aid of this instrumentarium it was always possible to pass the hiatus and bring the dilator to the right location. The difficult cases should be treated before the x-ray screen. Force should be avoided. Once the guide has passed the hiatus, the rigid dilator follows easily. The dilation is done suddenly and under strong pressure, so that the ring of the cardia is opened in from one to two seconds; and almost before the patient realizes it the instrument is removed again. The author considers complicated cases of cardiospasm those that occur in children. He suggests a method for these cases. Other difficult cases are those in which the neck is extremely short or in which the head cannot be bent backward. He emphasizes that in complicated cases the treatment requires considerable experience and practice.

**Lobar Pneumonia as Epidemic Disease.**—Gundel and Wallbruch describe an epidemic of lobar pneumonia in a village of approximately 300 inhabitants. Two weeks before the appearance of the first case there had been a mild influenza epidemic, but the nineteen cases of lobar pneumonia that developed subsequently were readily differentiable from the influenza. The nineteen cases occurred in twelve out of the total number of fifty families. The epidemic commenced among the school children. In seventeen cases pneumococci of type I were isolated and in one case the examination of the sputum gave negative results but serologic tests revealed the presence of specific antibodies against pneumococci of type I. The type diagnosis failed in only one of the cases. Examination of the sputums or of the pharyngeal smear preparations disclosed a high percentage of carriers of pneumococci of type I among the inhabitants of the village. The authors conclude that the epidemic appearance of lobar pneumonia cannot be doubted and that it may be grouped with the true infectious diseases.

## Klinische Wochenschrift, Berlin

14: 449-480 (March 30) 1935. Partial Index

*Progressive Lipogranulomatosis of Musculature: Pathogenesis of Progressive Osteoplastic Myopathy. Teutschlaender.—p. 451.
New Studies on Presence of Acetylcholine in Blood. R. Ammon.—p. 453.
*Enteral and Parenteral Administration of Calcium. Hoesch.—p. 461.
*Granulocytopenia Following Medication with Amidopyrine. B. von Bonsdorff—p. 465.

**Progressive Lipogranulomatosis of Musculature.**—Teutschlaender reports the formation of lipogranuloma in the musculature of a child, who has been under his observation for five years. He shows that this disorder, which formerly was regarded as probably an early stage of myositis ossificans progressiva, is really not a disease of the muscular parenchyma but a disorder of the intramuscular connective tissue or, rather, of the lipomatous internal perimysium. In lipomyomatosis that develops on the basis of a congenital (or hereditary?) constitutional anomaly there appear, as the result of a locally progressing endarteritis obliterans and of progressive trophic disturbances, necroses with reactive granuloma formation into which calcium salts are deposited. The author applies to these formations the term lipocalcinogranulomatosis. In the reported case the lipocalcinogranulomatosis was symmetrical and progressive. Some processes underwent inflammatory softening, fistula formation, evacuation of the fat-calcium emulsion and finally healing and cicatrization, while others, apparently by metaplastic bone formation, developed into progressive osteoplastic myopathy. The author insists that the disorder, the nature of which has been misunderstood heretofore, is a well defined disease entity and should be differentiated from its possible after-disease, "progressive osteoplastic myopathy," for it does not necessarily terminate in ossification. It may be assumed that, as in other disturbances of the muscular and motor apparatus, this disorder occurs also in different types. The reported case might be considered as an example of an infantile or juvenile scapular or scapulohumoral type of lipocalcinogranulomatosis.

**Administration of Calcium.**—Hoesch stresses the therapeutic value of calcium gluconate in tetanic spasms and reports his studies on the action of enteral and parenteral calcium therapy on the calcium content of the serum. Whereas former studies investigated the changes in the calcium content only for a relatively short time after the injection, he studied the changes, at intervals of two or three hours, for a period of one or two days. He points out that there are three fractions of calcium in the serum: (1) the ionized calcium, (2) the calcium in a complex compound and (3) the colloidal calcium. In the first series of his experiments he determined the total calcium content and the ultrafiltrable calcium. The total calcium minus the ultrafiltrable calcium equals the colloidal calcium, for the ultrafiltrable calcium contains the ionized calcium as well as the calcium in the complex compound. The colloidal calcium is the fraction that is combined with the protein. The author's studies disclosed that the intravenous injection of calcium gluconate increases the ultrafiltrable calcium greatly and the colloidal calcium slightly. The two fractions reach their maximum usually at different times. Two forms of hypocalcemia occur after parenteral and oral calcium therapy. The intravenous administration of calcium is followed by a renewed increase in the blood calcium after fourteen or sixteen hours. The hypocalcemia following the intravenous administration of calcium gluconate is occasionally accompanied by mild tetanic symptoms. Repeated medication with calcium (oral or parenteral) at shorter or longer intervals (up to twenty-four hours) produces an effect on the course of the calcium content of the blood similar to that produced by the repeated administration of carbohydrates on the blood sugar of persons without diabetes; that is, it prepares the way for the assimilation. The author thinks that this facilitation of assimilation is effected by intermediary factors.

**Granulocytopenia Following Medication with Amidopyrine.**—Von Bonsdorff reports the history of three patients with granulocytopenia. In two cases it was virtually certain that medication with amidopyrine was the cause, and it was probable in the third case. In some persons a few small doses of amidopyrine elicit a granulocytopenia, while in other cases it appears suddenly some time after large doses of the substance have been administered without causing disturbances at the time of administration. This shows that therapeutic doses of amidopyrine in sensitive persons may have a detrimental effect on the general condition and on the hematopoietic organs. The action on the granulocytopoietic apparatus is stimulating as well as inhibiting. The total number of granulocytes decreases, but the immature and young forms increase. In some instances, leukocytosis may follow. Amidopyrine influences the organs that produce the monocytes and lymphocytes as well as the erythropoiesis. The changes disappear spontaneously when medication is discontinued. However, it may be assumed that the continuous use of amidopyrine may eventually cause grave clinical symptoms. Animal experiments proved likewise that the administration of amidopyrine or of related substances may eventually impair the hematopoietic organs and lead to leukocytosis, leukopenia or anemia. Moreover, amidopyrine tolerance tests on persons who have had granulocytopenia indicate that amidopyrine may lead to granulocytopenia.

## Medizinische Klinik, Berlin

31: 365-404 (March 22) 1935. Partial Index

Periodicity of Genital Hemorrhages. H. Knaus.—p. 371.
*Chemotherapy and Serotherapy of Spirochetal Jaundice (Weil's Disease). P. Uhlenhuth and E. Zimmermann.—p. 375.
*Antianemic Substances in Urine. A. Decastello.—p. 377.
Therapeutic Action of Intravenously Administered Liver Extracts in Hypochloremic Azotemia. R. Bauer.—p. 380.

**Chemotherapy and Serotherapy of Spirochetal Jaundice.**—Uhlenhuth and Zimmermann studied the therapeutic action of several bismuth preparations in guinea-pigs that had been infected with spirochetal jaundice. They found three preparations quite effective and think that with due caution these preparations could be tried in human subjects with spirochetal jaundice. These preparations should be administered

intramuscularly or intravenously. Although chemotherapy of spirochetal jaundice is still in the experimental stage, serotherapy has been proved effective. Studies on patients convalescing from infectious jaundice disclosed that the convalescent serum has the greatest therapeutic value when it is withdrawn between the thirtieth and the fiftieth day following the onset of the disorder. This convalescent serum should not be more than six months old at the time of administration. Rabbit serums have about the same therapeutic value as human convalescent serums and they have the added advantage that they can be preserved for longer periods.

**Antianemic Substances in Urine.**—Decastello gave patients with pernicious anemia daily enemas (300 cc.) of the urine of healthy persons and observed that as the result of this treatment the reticulocytes increased and subsequently the blood picture and the general condition improved. The same effect could be produced also with the urine of patients with pernicious anemia. The author tried the treatment with urine also on patients with other forms of anemia, but it proved ineffective. He thinks that the antianemic substance in the urine is probably identical or related to Castle's intrinsic factor. This would indicate that this factor is not entirely absent in patients with pernicious anemia but that it may be present in the blood without reaching the stomach. In megalocytic-hyperchromic anemias with normal gastric chemistry (anemia caused by intestinal worms, anemia developing during pregnancy and some cases of pernicious anemia) the primary deficiency of the blood in antianemic substance may be the etiologic factor. The author thinks that the antianemic factor may eventually be chemically extracted from urine, and thus another biologic preparation would be available for the treatment of pernicious anemia.

## Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

**99**: 1-128 (March) 1935. Partial Index

*Heredity of Deformities. E. Goldmeier.—p. 2.
*Etiology and Pathogenesis of Eclampsia with Especial Consideration of Condition of Heart. A. Dienst.—p. 13.
Premenstrual Rise of Temperature. A. von Fekete.—p. 29.
Gonorrhea and Pregnancy. R. Spiegler and W. Hartung.—p. 41.
Critical Studies on Pregnancy Reactions. E. Fischer.—p. 69.
Value of Confrontation and of Bordet-Gengou's Method for Recognition of Latent Gonorrhea in Women. A. P. Kuschelewsky.—p. 73.

**Heredity of Deformities.**—Goldmeier studied twenty-two cases of congenital deformities, such as clubfoot, harelip, cleft palate and micromelia. He was able to demonstrate hereditary transmission in nine cases. He found that the hereditary transmission is not necessarily strictly specific in that exactly the same disorder is transmitted, but that the defect may appear in a different form or that other defects may complicate the specific one.

**Etiology of Eclampsia.**—Dienst, on the basis of his studies and of other reports, reaches the following conclusion: The relative cardiac insufficiency during eclampsia, which leads to an insufficient blood perfusion of the organs that form antithrombin (particularly liver, placenta and thyroid) and the consequent antithrombin deficiency of the circulating blood is, in the last analysis, responsible for the flooding of the arterial blood with the antagonists of the antithrombin; namely, with thrombin or thrombokinase. The presence of the large amount of thrombin has a toxic effect on all parenchymatous organs, the brain, the sympathetic nervous system and the entire capillary system. Among other changes, it causes an albuminous degeneration of the fibers of the cardiac muscles, angiospasm, increased blood pressure and permeability of the capillaries, which explains the internal edemas. Serous transudation from the choroid plexus into the third ventricle leads to irritation of the center of convulsion and thus produces tonoclonic spasms; that is, the eclamptic convulsions. If the eclampsia takes a chronic course, the pulmonary circulation becomes involved and then the heart and the arterial circulation, including the placenta. This also explains the development of hemorrhagic necroses in the myocardium, liver, kidney and placenta. The author considers the increase of thrombin the true toxin in eclampsia. The excess of thrombin causes general vascular spasms, oxygen deficiency and internal suffocation.

## Monatsschrift für Kinderheilkunde, Berlin

**61**: 321-400 (March 15) 1935. Partial Index

Percutaneous Reactions with Tuberculin Deficient in "Death Substance." H. Strauch.—p. 321.
Bronchoscopy and Other Interventions in Severe Stenoses of Unknown Etiology. E. Hässler.—p. 330.
*Experiences with Auto-Urotherapy. M. Krebs.—p. 342.
Clinical Aspects of Alveolar Enanthem in Measles. H. Seckel.—p. 351.
*Abortive Form of Pneumococcic Peritonitis. E. Kramár.—p. 370.

**Experiences with Auto-Urotherapy.**—Krebs points out that, if auto-urotherapy is employed in allergic conditions, the result may be favorable or a complete failure. This uncertainty makes it desirable to devise a method for the examination of the urine that will permit the determination of the probable efficacy of the urine in advance. The author's first aim was to detect differences in the urines that were highly effective or entirely ineffective in the same disorder. He found that the therapeutically active and inactive urines differed in a deviation of the normal ratio of oxydase and reductase. He determined the oxydases by means of the artificial oxydase system of Loele and the reductase according to his own method, and he gained the impression that to a certain extent these methods permit the determination of the possible effect of the urine before its application. He found auto-urotherapy effective in Quincke's edema, laryngospasm, urticarial disturbances and some cases of migraine. The duration of whooping cough could be reduced in most cases (fourteen of eighteen) by means of auto-urotherapy. Some of the case reports indicate that the author injected 0.5 or 1 cc. of urine. He cites another report indicating that in doses up to 2 cc. urine may be injected many times. He emphasizes the necessity of sterility and the freedom from toxin. If a patient is sensitive to phenol, it is advisable to add another disinfectant to the urine.

**Abortive Form of Pneumococcic Peritonitis.**—Kramár shows that pneumococcic peritonitis may occasionally take an abortive course. In the two cases observed carefully from the beginning, the disorder began with fever, vomiting and abdominal pains and resembled a simple gastric disturbance. The signs of peritoneal irritation did not develop until several hours later, were not accompanied by severe general disturbances, and disappeared again on the following day. The diagnosis was corroborated by abdominal puncture. The author thinks that the abortive form of pneumococcic peritonitis is not as rare as may be believed and that some cases do not come under medical observation or come so late that they are not recognized. He calls attention to the cases of lobar pneumonia in which operation is performed because appendicitis is suspected. Early operation is inadvisable in cases of pneumococcic peritonitis, because an abortive course is possible. Abdominal puncture and the bacteriologic examination of the punctate is helpful in establishing a correct diagnosis. The author thinks that a high degree of immunity against pneumococci is the chief cause of the abortive course. The term abortive pneumococcic peritonitis should be restricted to mild cases of short duration.

## Wiener klinische Wochenschrift, Vienna

**48**: 385-416 (March 29) 1935. Partial Index

*Experimental Studies on Pathogenesis of Tuberculous Infection and of Development of Primary Complex. B. Busson.—p. 385.
Respiratory Therapy and Physical Exercise. K. Schutz.—p. 392.

**Studies on Pathogenesis of Tuberculosis.**—Busson observed a paralysis of the hind legs in one of a group of guinea-pigs that had been given a subcutaneous injection of a tubercle bacillus culture into the inguinal fold. The necropsy disclosed no signs of tuberculous infection, even at the site of injection. With the exception of hyperemia of the leptomeninges, there was nothing abnormal. Emulsions were prepared from the brain and spinal cord and were injected into guinea-pigs intracerebrally, intramuscularly or subcutaneously. The guinea-pigs that had been given the intracerebral injections developed, after ten or twelve days, severe cerebral symptoms, then paralytic disturbances of the extremities and finally tonoclonic spasms. The disease usually lasted about five days. The necropsy of these animals gave essentially the same results as that of the first animal. The histologic examination of the leptomeninges disclosed infiltration, and the bacteriologic examination revealed the presence of tubercle bacilli in the leptomeninges. On the

basis of these observations and of reports in the literature the author concludes that a tuberculosis of the central nervous system is possible in which the changes that generally characterize tuberculosis are absent and in which the histologic aspects frequently can be correctly interpreted only on the basis of bacteriologic examination. Following further discussions on the absence of the primary focus in some cases of tuberculous infection, the author advances the theory of a regulatory action of the macro-organism on the course of the tuberculous infection and thinks that this regulatory action has failed in cases in which no primary focus develops and in which the central nervous system becomes involved at once.

## Zentralblatt für Gynäkologie, Leipzig

59: 721-784 (March 30) 1935. Partial Index

*Aschheim-Zondek's Pregnancy Reaction and Roentgen Rays. L. Nürnberger.—p. 722.
*Embolic Transmission of Foreign Body (Rubber Catheter) into Heart in Criminal Abortion. J. Bláha.—p. 746.
*Use of Vernix Caseosa in Formation of Artificial Vagina and Histologic Examination of the Latter. R. Kleitsman and L. Poska-Teiss.—p. 755.

**Aschheim-Zondek's Reaction and Roentgen Rays.**—Nürnberger investigated the outcome of the pregnancy reaction in infantile female white mice that had been exposed to roentgen irradiation. The data given in a tabular report indicate that it is possible to elicit the Aschheim-Zondek reaction in infantile female mice even after prolonged irradiation with large doses of roentgen rays. This is surprising, particularly when it is considered that degenerative changes appear in the follicular epithelia a few hours after irradiation with large doses of roentgen rays. In order to gain a better insight into the processes that take place in the ovaries of the irradiated animals, the author subjected to histologic examination the ovaries of control animals that were irradiated and killed after the same number of days as those that had been given injections of pregnancy urine. In all ovaries, changes were evident that are known to be the result of irradiation; namely, shrinking of the ova, globular chromatin degeneration and vesiculovacuolar disintegration of the protoplasm of the follicular epithelia and shedding of débris of nuclei and of protoplasm into the follicular cavity. In spite of these considerable changes in the irradiated ovaries, the administration of the gonadotropic hormone was followed by maturation of the follicle and by formation of corpora lutea. The uterus of the animals treated with pregnancy urine was enlarged and thickened and in the vagina the typical cast-off, non-nucleated horny lamellae were found.

**Embolic Transmission of Catheter into Heart Following Abortion.**—Bláha reports the history of a woman who requested a medical examination because on the previous day she had attempted an abortion by means of a rubber catheter. Examination disclosed a perforation of the cervix. Roentgenoscopy did not reveal the shadow of a foreign body. An exploratory laparotomy was resorted to, but a catheter could not be found. Curettage disclosed that there had been an incomplete abortion and it was assumed that the catheter had induced the abortion and had been expelled without the woman noticing it. Sepsis developed and the woman died on the seventh day. At necropsy, on examination of the cervical organs, the lower, rough end (evidently broken off) of the catheter, which was 23.5 cm. long and 4 mm. thick, was detected in the inferior vena cava near the diaphragm. From there the catheter extended through the right auricle, the superior vena cava and the innominate vein into the left common jugular vein, in which the upper, smooth end of the catheter was found several centimeters above the clavicle. A comparison of the conditions found at necropsy with the clinical course indicates that, following perforation of the cervix, the catheter must have entered a wide vein of the uterine plexus, from which it slipped directly into the right hypogastric vein and into the inferior vena cava. It may be deduced from a number of symptoms that the catheter reached the heart on the fifth day following its introduction into the uterus. At any rate the catheter must have been in the heart for about forty-eight hours without causing severe impairment of the heart action. The author reviews the literature on foreign bodies in the heart and found that in the majority of cases the foreign body was a projectile. He thinks that the reported case is the first one in which such a large foreign body entered the heart by embolic transmission. He reviews cases from the literature in which catheters disappeared following introduction into the uterus. In some cases the catheter was extracted from the uterus; in others it entered the retroperitoneal tissue and was later extracted from an abscess; in others it entered the preperitoneal tissue and caused an abscess in the anterior abdominal wall; in others it entered Douglas's pouch, and in a considerable number of cases it entered the free abdominal cavity and produced diffuse peritonitis. The author stresses the necessity of careful inspection.

**Vernix Caseosa in Formation of Artificial Vagina.**—The report of Bregadse on wound treatment with vernix caseosa induced Kleitsman and Poska-Teiss to use vernix caseosa in the treatment of refractory bed sores. They gained the impression that vernix caseosa produced more rapid healing than did other measures, and they decided to use sterile vernix caseosa instead of epidermic flaps to cover the wound canal in the artificial formation of a vagina. They describe a case in which this was done and in which complete epithelization of the artificial vagina was obtained in a relatively short period. Histologic examination disclosed that the epithelium of the newly developed vaginal mucous membrane apparently did not develop from the elements of the vernix caseosa. The mode of action of the vernix caseosa is still a matter of conjecture.

## Klinicheskaya Meditsina, Moscow

13: 159-314 (Feb.) 1935. Partial Index

Systemic Diseases of Circulatory Organs. D. O. Krylov.—p. 159.
Diagnostic Value of Costa's Reaction in Pulmonary Tuberculosis. E. N. Trebitskaya.—p. 199.
Roentgenologic Appearance of Lungs in Patients with Skin Tuberculosis. A. Braynin.—p. 213.
Tuberculosis and Annular Granuloma. I. A. Gorchakov.—p. 217.
Active Immunization of Man Against Tetanus. Z. Michaylova and I. Velikanov.—p. 247.
*Effect of Diphtheritic and Scarlet Fever Toxins on Heart of Dog. M. L. Reyngold.—p. 258.

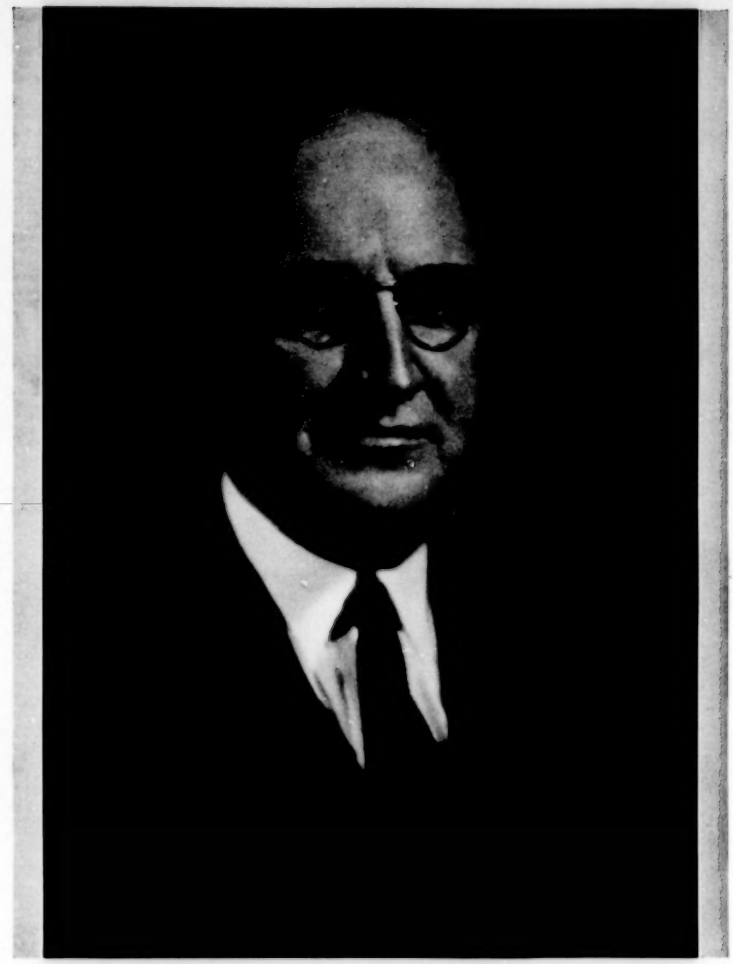
**Effect of Diphtheritic and Scarlet Fever Toxins on Heart.**—Reyngold studied the effects of diphtheria and scarlet fever toxins on the heart of a dog under the conditions of the Starling preparation of heart and lungs. The animal's own blood and Ringer-Locke solution were used for perfusion. Nine successful experiments were carried out. He found that the dog's heart is capable of tolerating large doses of scarlet fever and diphtheria toxins. The diphtheria toxin affects primarily the heart muscle, causing a diminution in the minute volume, lowering of pressure in the right auricle and acceleration of the pulse after an initial slowing. The diphtheria toxin is capable of producing at times a temporary initial stimulation of cardiac activity, causing an increase in the minute volume output of blood and an increase in the pressure within the right auricle. The scarlet fever toxin affects the heart musculature to a lesser degree than the diphtheria toxin. Its effects in the beginning are to increase the cardiac contractions with a consequent increase in the minute volume output and a fall of the blood pressure of the right auricle. This is followed by cardiac depression and involvement of the cardiac musculature as a result of which the minute volume output diminishes, the pressure in the right auricle increases and the pulse becomes accelerated. Scarlet fever toxin was found to lower the oxidizing power of blood in experiments. The alterations produced in the heart by the diphtheria or scarlet fever toxins are permanent and are influenced for only a short time or not at all by stimulation with cardiac stimulants and nutritive fluid (blood).

## Finska Läkaresällskapets Handlingar, Helsingfors

77: 71-132 (Feb.) 1935

Weeping. E. Enroth.—p. 76.
*Postoperative Tetany with Changes in Electrocardiogram: Case. J. Wickström.—p. 89.
Prognosis of Diabetes Mellitus in Children in Finland. P. Forssell.—p. 98.

**Postoperative Tetany with Changes in Electrocardiogram.**—Wickström's case presented a lengthening of the systole in the electrocardiogram to 0.47 second, which, according to Fredericia's formula, exceeds the normal boundary value by 0.05 second. Calcium treatment resulted in a decrease of this lengthening and, parallel with it, the tendency to spasms was reduced and the blood calcium values were increased.



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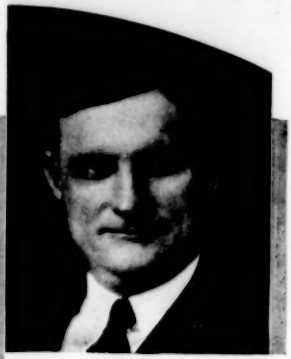

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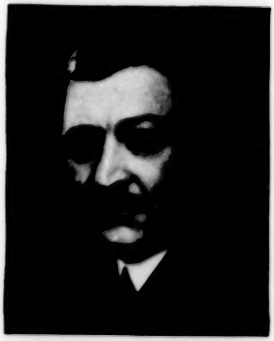

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